

13. CONDUCT OF OPERATIONS

13.3 Emergency Planning

The U.S. Nuclear Regulatory Commission (NRC) evaluates emergency plans for nuclear power reactors to determine whether there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. An early site permit (ESP) application, pursuant to Title 10, Section 52.17(b), of the *Code of Federal Regulations* (10 CFR 52.17(b)), must identify any physical characteristics unique to the proposed site that could pose a significant impediment to the development of emergency plans. The application must also describe the contacts and arrangements the applicant has made with Federal, State, and local government agencies with emergency planning responsibilities. In addition, the application may propose major features of emergency plans, as described in Supplement 2 to NUREG-0654/FEMA-REP-1, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants—Criteria for Emergency Planning in an Early Site Permit Application—Draft Report for Comment" (hereafter referred to as Supplement 2), issued April 1996, or may propose complete and integrated emergency plans.

In Section 13.3 of the site safety analysis report (SSAR), the applicant presented the major features of its proposed emergency response plan pursuant to 10 CFR 52.17(b)(2)(i). Because the proposed ESP site footprint consists of a portion of the existing North Anna Power Station (NAPS) site and is located immediately adjacent to NAPS, very little distinction exists between the NAPS site and the ESP site for purposes of emergency planning. The ESP application takes advantage of the emergency planning resources, capabilities, and organization that currently exist at the NAPS site.

The ESP applicant, Dominion Nuclear North Anna, LLC (Dominion) is an indirect, wholly owned subsidiary of Dominion Resources, Inc. (Dominion Resources). Virginia Electric and Power Company (Virginia Power, formerly VEPCO), which operates the existing nuclear units on the NAPS site (i.e., North Anna Units 1 and 2), is also a wholly owned subsidiary of Dominion Resources. If the COL or CP applicant were to proceed with the development of new reactor units at the ESP site, it would enter into an arrangement with Virginia Power to coordinate and implement an integrated emergency plan, which, in effect, would extend the existing emergency planning and preparedness activities to the new reactor unit(s). The related offsite aspects of emergency planning would remain essentially unchanged.

The staff, in consultation with the Federal Emergency Management Agency (FEMA), has reviewed the applicant's proposed emergency plan, applicable portions of the North Anna Emergency Plan (NAEP), the Commonwealth of Virginia Radiological Emergency Response Plan (COVRERP), county radiological emergency response plans (RERPs), responses to requests for additional information (RAIs), and generally available reference materials in accordance with NRC Review Standard (RS)-002, "Processing Applications for Early Site Permits," issued May 2004.

Because the applicant has elected to present and seek NRC acceptance of the major features of emergency plans, the staff's evaluation addresses, in order, the three aspects of such a

submission. The following identifies each aspect and the section of this safety evaluation report (SER) in which it is discussed:

- identify physical characteristics that could pose a significant impediment to the development of emergency plans (SER Section 13.1.1)
- describe contacts and arrangements made with Federal, State, and local government agencies with emergency planning responsibilities (SER Section 13.3.2)
- propose major features of the emergency plans (SER Section 13.3.3)

The applicant identified Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," as applicable to the major features it proposed. Appendix E, however, applies to the "major features" option of 10 CFR 52.17(b)(2) only to the extent that it requires description of the "essential elements of advance planning that have been considered" (see Section III of Appendix E to 10 CFR Part 50). The staff has approved the applicant's identification of Appendix E as one of the regulatory requirements applicable to the staff's review of the major features proposed by the applicant. The staff's findings are set forth throughout Section 13.3.3 of this SER, and are limited to those particular portions of Appendix E that the staff considered during the course of its review of a particular major feature. More importantly, any staff finding that a proposed major feature complies with a particular requirement of Appendix E is limited to the description of the major feature approved by the staff in this SER.

Notwithstanding any staff approval of a proposed major feature in this SER, all features of the emergency plan requiring description pursuant to Appendix E, but which are not described in the ESP application, will be reviewed in the context of a combined license (COL) or operating license (OL) application. The staff will review complete and integrated emergency plans submitted in a COL or OL application to determine whether they comply with such requirements, as well as the requirements of 10 CFR 50.47, "Emergency Plans."

The staff's evaluation of the proposed major features of the applicant's emergency plans parallels the major features and planning standards in Supplement 2.

13.3.1 Significant Impediments to the Development of Emergency Plans

13.3.1.1 Technical Information in the Application

In SSAR Section 13.3.2, the applicant stated that the major features emergency plan (i.e., Section 13.3 of the SSAR) takes advantage of the emergency planning resources, capabilities, and organization that Virginia Power has already established and currently maintains at the NAPS site. In addition, SSAR Section 13.3.2.2 states that the ESP site is adjacent to a preexisting nuclear facility with existing State and local emergency plans. Hence, the SSAR relies on and refers to the information contained in these existing plans.

SSAR Section 13.3.2.1 states that the applicant used a preliminary analysis of the evacuation times, incorporating the evacuation time estimate (ETE) methods recommended in Section II of Supplement 2 to identify any physical characteristics unique to the ESP site that could pose a

significant impediment to the development of emergency plans. This estimate included seasonal recreational visitors around Lake Anna and school populations. The most recent ETE, IEM/TEC01-220, "Evacuation Time Estimates for the North Anna Power Station and Surrounding Jurisdictions," dated November 2, 2001, describes the analysis methods and results.

SSAR Section 13.3.2.1.2 states that the most recent ETE for the NAEP is based on Census 2000 data and applies to the ESP site. The total permanent resident population within the 10-mile (mi) plume exposure pathway emergency planning zone (EPZ) is 20,292. The ETE considers permanent residents, transients, and persons in special facilities, including school populations (which are the only institutional populations within the 10-mile EPZ). Emergency traffic is expected to flow away from the ESP site, and the road network can adequately accommodate anticipated vehicular traffic. SSAR Section 13.3.2.2.j.3 further states that the ETE results in evacuation time estimates that are based on different affected population areas and weather conditions, with estimates ranging from 85 to 105 minutes (min).

Appendix 10.8 to the NAEP incorporates the November 2001 ETE cited above. The appendix describes the methods used to obtain current population data and to produce the ETEs, and it reports the updated population figures, road network information, and ETEs. The evacuation scenarios that were modeled were based on peak season nighttime population counts (representing the worst case), and the analysis noted no significant traffic congestion in any of the scenarios evaluated.

In addition, the ETE includes maps which show various features of the 10-mile EPZ. Figure 1, "Map of the Area around North Anna Power Station," of the ETE, which identifies the transportation networks and political boundaries, shows the NAPS site and the 10-mile EPZ area. Figure 2, "Map of the Protective Action Zones for North Anna Power Station," Figure 3, "Permanent Resident Population Distribution Based on 2000 Census Data by Sector and Ring," and Figure 6, "Evacuation Roadway Network," show the political boundaries. Figures 1, 2, and 3 also show the location of the NAPS site. Figures 1, 2, 3, and 6 identify the transportation networks, topographical features, and political boundaries. Figure 2 shows evacuation subareas (i.e., protective action zones (PAZs)). Section 1.2, "Emergency Planning Zone," of the ETE states the following basis for the PAZs:

Twenty-five zones have been established for the NAPS 10-mile EPZ. To the extent feasible, the zones were selected based on existing political boundaries to enhance direction and coordination of the public in the affected area. The demarcation of the zones are roughly 2, 5, and 10 miles from the nuclear facility.

This permits flexibility and selectivity in application of protective actions. Figure 2 is a map of the PAZs for NAPS. Attachment 1 contains boundary descriptions of the PAZs within the 10-mile emergency planning zones for NAPS.

In RAI 13.3-9, the staff asked the applicant to specifically state whether it identified any physical characteristics unique to the proposed ESP site from the ETE or any other source or analysis that could pose a significant impediment to the development of emergency plans for the site. In its response, the applicant stated that it had not identified any physical characteristics unique to the North Anna ESP site that could pose a significant impediment to the development of emergency plans for the site and that the ETE did not identify any areas of congestion during the evacuation evaluations.

In SSAR Section 13.3.2, the applicant stated that the major features emergency plan (i.e., SSAR Section 13.3) takes advantage of the emergency planning resources, capabilities, and organization that Virginia Power has already established and currently maintains at the NAPS site. In RAI 13.3-3, the staff asked the applicant whether it wished to incorporate applicable sections of the existing NAEP into the application, to the extent that the NAEP supports the emergency planning description in the application. In its response, the applicant confirmed that it had incorporated applicable sections of the existing NAEP into the application.

In RAI 13.3-11, the staff asked the applicant to address whether the increases in population during the term of an ESP could pose a significant impediment to the development of emergency plans. In its response, the applicant stated that the ETE identified no areas of congestion and that travel time is relatively inelastic with respect to anticipated changes in road capacity. In SSAR Section 2.1.3, the applicant provided population projections and stated that any population increase is projected to be gradual over time. Planning and consideration of new roads or modifications of existing roads and intersections could offset any large influx of new permanent or transient populations within the 10-mile EPZ.

13.3.1.2 Regulatory Evaluation

In SSAR Section 13.3.1, the applicant stated that SSAR Section 13.3 presents information required by 10 CFR 52.17(b)(1) regarding the identification of potential impediments to emergency planning. In its review of the application, the staff considered the regulatory requirements in 10 CFR 52.17(b)(1), which mandate that the applicant for an ESP identify physical characteristics unique to the proposed site, such as egress limitations from the area surrounding the site, that could pose a significant impediment to the development of emergency plans. The staff further considered 10 CFR 52.18, "Standards for Review of Applications," which requires consultation with FEMA to determine whether the information required of the applicant by 10 CFR 52.17(b)(1) demonstrates that no significant impediment to the development of emergency plans exists. Supplement 2 and RS-002 provide guidance concerning the review and evaluation of emergency planning information given in an ESP application.

Supplement 2 defines a significant impediment as a physical characteristic or combination of physical characteristics that would pose major difficulties for an evacuation or the taking of other protective actions. Such unique physical characteristics may be identified by performing a preliminary analysis of the time for evacuating various sectors and distances within the 10-mile EPZ for transient and permanent populations, noting major difficulties for an evacuation (e.g., significant traffic-related delays) or the taking of other protective actions.

According to RS-002, the applicant should address factors, such as the availability of adequate shelter facilities, local building practices and land use (e.g., outdoor recreation facilities, including camps, beaches, hunting or fishing areas), and the presence of large institutional or other special needs populations (e.g., schools, hospitals, nursing homes, prisons) when identifying significant impediments to the development of emergency plans. Any ETE or other identification of physical impediments should include the latest population census numbers and the most recent local conditions. In addition, the applicant should describe the proposed means for resolving any impediments identified.

13.3.1.3 Technical Evaluation

In SSAR Section 13.3.2.1.2, the applicant stated that the road network surrounding the NAPS site, which includes the ESP site, can adequately accommodate anticipated vehicular traffic. This conclusion is based on the most recent ETE, which uses Census 2000 data. SSAR Section 13.3.2.2.j.3 states that the resulting ETEs are based on different population areas and weather conditions, and range from 85 to 105 min.

In SSAR Section 13.3.2, the applicant stated, in part, that the major features emergency plan (i.e., SSAR Section 13.3) takes advantage of the emergency planning resources, capabilities, and organization that Virginia Power has already established and currently maintains at the ESP site. In response to RAI 13.3-3, the applicant confirmed that it had incorporated applicable sections of the existing NAEP into the application, to the extent that the NAEP supports the emergency planning descriptions in the application. This includes the ETE contained in Appendix 10.8 to the NAEP. As a result, the staff reviewed portions of the NAEP as part of its review of the ESP application and based its evaluation of the emergency planning information in the application on both SSAR Section 13.3 and relevant portions of the NAEP, including the ETE.

The ESP site footprint consists of a portion of the NAPS site and is located near the existing NAPS reactors. The boundary of the ESP site is entirely within the boundary of the existing NAPS site. The staff has not identified any significant differences between the major features proposed in the SSAR and the major features discussed in existing plans and relied on in the SSAR. The staff finds that, for purposes of identifying physical characteristics that could pose a significant impediment to developing emergency plans, there is no distinction between the existing NAPS site and the ESP site. Because the existing NAPS site includes the ESP site, the staff finds that the applicant's use of the ETE for the NAPS site in the ESP application is acceptable and appropriate.

In RAI 13.3-11, the staff asked the applicant to address possible changes to this determination, as it relates to the ESP site, including the duration of the ESP itself. In its response, the applicant stated that the ETE identifies no areas of congestion and that travel time is relatively inelastic with respect to anticipated changes in road capacity. Further, SSAR Section 2.1.3 provides population projections and suggests that population increase will be gradual over time. Planning and consideration of new roads or modifications of existing roads and intersections could offset any large influx of new permanent or transient populations within the 10-mile EPZ.

In response to RAI 13.3-9, the applicant stated that it had not identified any physical characteristics unique to the North Anna ESP site that could pose a significant impediment to the development of emergency plans for the ESP site, and that the ETE identified no areas of congestion during the evacuation evaluation. The ETE, which reflects Census 2000 data, considers permanent residents, transients, and persons in special facilities, including school populations. Population increases over the duration of the ESP are projected to be gradual, and new or modified roads and intersections could offset any large influx of new permanent or transient populations within the 10-mile EPZ. Accordingly, the staff finds that the applicant's conclusion that it found no significant impediments is acceptable, and no physical characteristics unique to the proposed ESP site have been identified that could pose a significant impediment to the development of emergency plans for the ESP site.

13.3.1.4 Conclusions

As discussed above, the applicant has shown through use of the ETE that no physical characteristics unique to the proposed ESP site could pose a significant impediment to the development of emergency plans. Based on its review as set forth above, the staff concludes that the information the applicant provided is consistent with the guidelines in RS-002 and Supplement 2. Therefore, the information is acceptable and meets the requirements of 10 CFR 52.17(b)(1) and 10 CFR 52.18.

13.3.2 Contacts and Arrangements with Local, State, and Federal Agencies

13.3.2.1 Technical Information in the Application

SSAR Section 13.3.2.2 states that the ESP site is adjacent to a preexisting nuclear facility with existing State and local emergency plans. The SSAR, therefore, relies on and refers to the information contained in these existing plans. The applicant did not identify any significant differences between the major features of emergency plans proposed in the application and the major features discussed in existing plans and, therefore, relied on this information in the application. SSAR Section 13.3.3 lists the 19 Federal, State, and local government agencies with emergency planning responsibilities in support of NAPS. In addition, the applicant stated the following:

Dominion provided an overview of the ESP project to DEM [Commonwealth of Virginia Department of Emergency Management (VDEM)] staff members on February 20, 2003 and to risk jurisdiction coordinators of emergency management on March 24, 2003. The NRC licensing process, emergency preparedness requirements for ESP applicants, and Dominion's schedule for preparing and submitting this ESP application [for North] Anna were described at both meetings. During the discussions regarding the ESP process, no impediment to pursuing an ESP was identified by Commonwealth of Virginia or risk jurisdiction response organizations.

SSAR Section 13.3.2.2.2.a.6 provides a nearly identical statement to the above. SSAR Section 13.3.2.2.2.a.6 further states that the existing licensed facilities (i.e., North Anna Units 1 and 2) maintain, within the NAEP, letters of agreement with the U.S. Department of Energy (DOE), Commonwealth of Virginia agencies, and various local agencies.

In RAI 13.3-1, the staff asked the applicant to document its arrangements with Federal, State, and local government agencies with emergency planning responsibilities that specifically address the impacts of an additional reactor(s) at the ESP site, in particular, how these arrangements address any impact that an additional reactor(s) at the North Anna site would have on government agency emergency planning responsibilities. The staff also asked the applicant to provide acknowledgment by the agencies of these proposed expanded responsibilities (if any). In its response, the applicant provided letters of agreement from the 19 agencies with which Dominion Resources has existing agreements for the NAPS, which had been revised to specifically acknowledge the agencies' awareness of the ESP application for the NAPS site. In addition, the letters state that the existing agency arrangements would apply to a prospective additional reactor(s) at the NAPS site.

13.3.2.2 Regulatory Evaluation

In SSAR Section 13.3.1, the applicant stated that SSAR Section 13.3 presents information required by 10 CFR 52.17(b)(3) regarding descriptions of contacts and arrangements that the applicant has made with Federal, State, and local government agencies with emergency planning responsibilities.

In its review of the application, the staff considered the regulatory requirements in 10 CFR 52.17(b)(3), which mandate, in part, that an ESP application describe the contacts and arrangements made with Federal, State, and local government agencies with emergency planning responsibilities. Supplement 2 and RS-002 provide guidance concerning the review and evaluation of emergency planning information given in an ESP application.

Supplement 2 states that the description of contacts and arrangements should include the name and location of the organization contacted, the title and/or position of the person(s) contacted, and the role of the organization in emergency planning. The evaluation criteria in Supplement 2, Section V, provide additional guidance, which applies to the submission of emergency plans under the major features option of 10 CFR 52.17(b)(2)(i).

According to RS-002, for an operating reactor site, the ESP application should clearly indicate the impact of applying an existing emergency preparedness program element to the expanded use of the site, including addressing any necessary changes to the program in support of a new reactor(s). For example, letters of agreement, reflecting contacts and arrangements made with State and local government agencies with emergency planning responsibilities, might need revision to reflect the anticipated presence of an additional reactor(s) at the site. Such revised letters of agreement should reflect any impact an additional reactor(s) would have on the agencies' emergency planning responsibilities and should include acknowledgment by the agencies of the proposed expanded responsibilities. The use of separate correspondence would also be acceptable. If the applicant cannot make arrangements with Federal, State, or local government agencies with emergency planning responsibilities, for whatever reason, the applicant should discuss its efforts to make such arrangements, along with a description of any compensatory measures it has taken or plans to take because of the lack of such arrangements.

13.3.2.3 Technical Evaluation

According to SSAR Section 13.3.3, the applicant conducted two meetings with the State and the risk jurisdictions (Hanover, Louisa, Orange, Spotsylvania, and Caroline Counties) to provide an overview of the ESP process for the NAPS site.¹ The applicant further stated that, during the meetings, neither the State nor the risk jurisdiction response organizations identified any impediment to pursuing an ESP.

The applicant has provided current letters of agreement that describe the contacts and arrangements it has made with Federal, State, and local government agencies with emergency planning responsibilities and which address their receipt and understanding of the ESP application for the NAPS site. These letters adequately describe the names and locations of

¹Risk jurisdictions are counties, any part of which lie within the 10-mile EPZ.

the organizations contacted, the titles and/or positions of the persons contacted, and the roles of the organizations in emergency planning for the ESP site. The letters of agreement also describe the arrangements for the specific support that would be provided, stating that the existing arrangements would apply to a prospective additional reactor(s) at the ESP site. Accordingly, the staff finds that the revised letters of agreement provided in response to RAI 13.3-1 are acceptable. Further, the staff finds that the Dominion presentations to the State and the risk jurisdictions, combined with the revised letters, adequately reflect an understanding, acknowledgment, and agreement by offsite agencies of their specific responsibilities with respect to construction and operation of a prospective additional reactor(s) at the NAPS site under an ESP. Sections 13.3.3.2, 13.3.3.3, 13.3.3.4, 13.3.3.7, 13.3.3.10, 13.3.3.11, and 13.3.3.13 of this SER provide additional descriptions of contacts and arrangements in support of the NAPS site that are relevant to the application.

13.3.2.4 Conclusions

As discussed above, the applicant has provided an acceptable description of contacts and arrangements made with Federal, State, and local government agencies with emergency planning responsibilities. Based on its review as set forth above, the staff concludes that the information the applicant provided is consistent with the guidelines in RS-002 and Supplement 2. Therefore, the information is acceptable and meets the requirements of 10 CFR 52.17(b)(3).

13.3.3 Major Features of the Emergency Plans

13.3.3.1 Emergency Planning Zones

13.3.3.1.1 Technical Information in the Application

SSAR Section 13.3.2 states that the proposed emergency plan takes advantage of the emergency planning resources, capabilities, and organization that Virginia Power has already established and currently maintains at the NAPS site. The applicant would extend the existing emergency planning and preparedness activities to include the proposed new unit(s). SSAR Section 13.3.2.2 states that the ESP site is adjacent to a preexisting nuclear facility with existing State and local emergency plans. The SSAR, therefore, relies on and refers to information contained in these existing plans. There are no significant differences between the major features proposed in the application and the major features discussed in existing plans and relied on in the application.

SSAR Section 13.3.2.2.1 states that the applicant has developed the emergency plan assuming a plume exposure pathway EPZ of about 10 miles in radius (10-mile EPZ) and an ingestion pathway EPZ of about 50 miles in radius (50-mile EPZ). The 10-mile and 50-mile EPZs identified in the ESP application are the same as those in the NAEP.

SSAR Section 13.3.2.2.1 further states that the size of these areas is subject to change if warranted by later analyses, design-specific factors, and legislation or regulatory initiatives. In SSAR Section 13.3.4, the applicant stated that the possible application of analyses performed subsequent to NUREG-75/014, "Reactor Safety Study: An Assessment of Accident Risk in U.S. Commercial Nuclear Power Plants," issued October 1975 (known as the WASH-1400

report), design-specific factors, and legislative or regulatory initiatives may affect the size of the 10-mile and 50-mile EPZs.

Section 5.4.6 of the NAEP identifies Louisa and Spotsylvania Counties as directly involved in the NAEP, since they include the majority of the area within the 10-mile EPZ. NAEP Table 5.3 lists the counties and cities within the 50-mile EPZ. NAEP Section 6.3, "Protective Actions," states that no hospitals, prisons, or nursing homes currently exist within the 10-mile EPZ (shown in NAEP Figure 6.1). Appendix 10.8 to the NAEP incorporates the ETE by reference. ETE Section 1.2, "Emergency Planning Zone," describes the 25 PAZs that the NAPS licensee has established within the 10-mile EPZ. In demarcating these zones, the NAPS licensee used prominent physical features, either natural (e.g., rivers) or manmade (e.g., roads) to make the PAZs readily comprehensible to the area's residents in the event of a radiological emergency. The demarcations of the zones are roughly 2, 5, and 10 miles from the nuclear facility, which permit flexibility and selectivity in the application of protective actions.

ETE Section 4.4, "Estimates for Special Facilities," states that the only special facilities located within 10 miles of the NAPS site are the schools identified in ETE Table 7, "School Population and Transportation." ETE Table 7 lists seven schools, with a total day population of 6471. ETE Section 3.0, "ETE Data and Methodology," indicates that the applicant defined the evacuation network based on the information documented in and provided through the Dominion Resources public outreach program, which includes calendars distributed by the company and information available on the company's Web site.

13.3.3.1.2 Regulatory Evaluation

SSAR Section 13.3.2.2 presents the major features of the applicant's emergency plan. The applicant stated that it prepared the information presented in SSAR Section 13.3.2.2 in accordance with 10 CFR 52.17(b)(2)(i) and Appendix E to 10 CFR Part 50, and it considered the guidance in Supplement 2. SSAR Section 13.3.2.2.2 states that Supplement 2 presents planning standards and evaluation criteria applicable to a major features emergency plan.

In its review of the application, the staff considered the regulatory requirements in 10 CFR 52.17(b)(2)(i) and 10 CFR 52.18. In addition, the staff considered the regulatory requirements in 10 CFR 50.33(g), 10 CFR 50.47(c)(2), and Sections I, III, and IV of Appendix E to 10 CFR Part 50 in its review of the size and configuration of the EPZs. Under 10 CFR 52.17(b)(2)(i), an applicant for an ESP may propose major features of the emergency plans for NRC review and approval, in consultation with FEMA, in the absence of complete and integrated emergency plans. Under 10 CFR 52.18, after consultation with FEMA, the NRC will determine whether the major features of emergency plans submitted under 10 CFR 52.17(b)(2)(i) are acceptable. RS-002 and Supplement 2 provide guidance concerning the review and evaluation of emergency planning information given in an ESP application. Supplement 2 also provides specific evaluation criteria for the major features of emergency plans, including those which apply to determining the size and configuration of the EPZs.

Section III.A of Supplement 2 states that an ESP applicant choosing the option of proposing major features of the emergency plans should give special emphasis to the exact size of the EPZs. Generally, the 10-mile and 50-mile EPZs consist of an area about 10 miles and 50 miles in radius, respectively. Applicants should determine the exact size and configuration of the EPZs with respect to local emergency response needs and capabilities, since the EPZs can be

affected by conditions such as demography, topography, land characteristics, access routes, and jurisdictional boundaries.

13.3.3.1.3 Technical Evaluation

SSAR Section 13.3.2 states that the ESP emergency plan takes advantage of the existing NAEP and that the applicant would extend the NAEP to include the proposed new unit(s). As such, this extension would include the existing NAPS 10-mile and 50-mile EPZs. The ESP site footprint consists of a portion of the NAPS site and is located near the existing NAPS reactors. The boundary of the ESP site is entirely within the boundary of the existing NAPS site. Therefore, the staff finds that, for the purposes of determining the exact size and configuration of the EPZs in relation to local emergency response needs and capabilities, no distinction between the NAPS site and the ESP site exists. As such, the staff finds that use of the existing NAPS 10-mile and 50-mile EPZs for the ESP site is appropriate and acceptable. The ESP application, the NAEP (including calendars distributed to the public), and the ETE reflect the existing NAPS 10-mile and 50-mile EPZs.

SSAR Sections 13.3.2.2.1 and 13.3.4 state that the size of the EPZs may be subject to change as a result of design-specific factors and legislative or regulatory initiatives. The staff did not consider the possibility of change in the size requirements for the 10-mile and 50-mile EPZs essential to its review. Rather, the staff applied current requirements. A COL or OL applicant should address any such policy or regulatory changes, as well as design-specific matters, and the staff will determine compliance with the requirements in these areas during a COL or OL review.

As stated in NAEP Section 6.3, no hospitals, prisons, or nursing homes are located within the 10-mile EPZ. ETE Section 3.0 further states that the applicant defined the evacuation network based on information documented in calendars distributed as part of a public outreach program. The calendars provide an area map and a listing of PAZs and evacuation assembly centers (EACs), which is consistent with the information in the application and the ETE.

ETE Section 1.2 states that the PAZs established within the 10-mile EPZ use prominent physical features, either natural or manmade, to outline the PAZ boundaries. In addition, the applicant selected the PAZs based on existing political boundaries. The staff, through its review of the ETE, did not identify any 10-mile EPZ boundaries that run through the middle of schools or hospitals, or that arbitrarily carve out small portions of government jurisdictions. As such, the staff finds that the size and configuration of the 10-mile and 50-mile EPZs reflect local emergency response needs and capabilities, as they are affected by conditions such as demography, topography, land characteristics, access routes, and jurisdictional boundaries.

10 CFR 50.33(g), 10 CFR 50.47(c)(2), 10 CFR 52.17(b)(2)(i), 10 CFR 52.18, and Sections I, III, and IV of Appendix E to 10 CFR Part 50, insofar as it describes the essential elements of advanced planning that have been considered for the emergency planning zones, as set forth above.

13.3.3.2 Assignment of Responsibility—Organization Control (Supplement 2, Major Feature A)

13.3.3.2.1 Technical Information in the Application

SSAR Section 13.3.2.2.2.a identifies organizations that are intended to be part of the overall emergency response organization (ERO). This section describes the primary responsibilities for the risk jurisdiction response organizations, the Commonwealth of Virginia, the Federal Government, and private sector organizations. As stated in SSAR Section 13.3.2.2.2.a.1, the elected officials of local governments have the responsibility for radiological emergency response within their jurisdictions. The existing county RERPs apply to radiological emergencies within the localities caused by events at the NAPS site and would apply to events at the ESP site. SSAR Section 13.3.2.2.2.a.5 as well as the COVERP and county RERPs also address the emergency response functions and responsibilities. The RERPs detail the legal bases for these authorities.

SSAR Section 13.3.2.2.2.a.2 states that the Commonwealth of Virginia's organization for responding to radiological emergencies is based on normal government structures and channels of communication. The Governor, in the role of Director of Emergency Management, directs the emergency response through the State coordinator of emergency management. The State coordinator of emergency management coordinates the overall response, and the Virginia Department of Health (VDH) provides technical advice and assistance on radiological accident assessment, protective action, radiological control, and radiological monitoring.

SSAR Section 13.3.2.2.2.a.3 states that, in the event an emergency classification is made pursuant to the emergency action levels (EALs), Dominion would make notifications, as described in SSAR Section 13.3.2.2.2.e. Further, Dominion personnel would maintain contact with the NRC to ensure that the Federal Government has access to accurate information about and an assessment of the emergency. SSAR Section 13.3.2.2.2.c describes the details of Federal assistance.

SSAR Section 13.3.2.2.2.a.4 states that Dominion would obtain support from the cognizant architect/engineer, the nuclear steam supply system vendor, and other consultants and vendors, as appropriate, to respond during the emergency and recovery operations. Experienced personnel with indepth expertise in plant design, engineering, and construction would be involved to aid in solving critical technical problems. The applicant stated that a COL or CP applicant would identify these consultants and vendors, as necessary, in the COL or CP application. Private sector response may also include radiological laboratories and other facilities and organizations, as described in SSAR Section 13.3.2.2.2.c.

SSAR Section 13.3.2 states that the major features emergency plan takes advantage of the emergency planning resources, capabilities, and organization that Virginia Power has already established and currently maintains at the NAPS site. NAEP Section 5.3, "Augmentation of Onsite Emergency Organization," and Section 5.4, "Coordination with Participating Government Agencies," identify specific Federal, State, and local agencies and private sector organizations

that are either directly involved in emergency response in support of the NAPS site or can be called upon to provide assistance. NAEP Figure 5.4, "Station to Support Group Interface Following LEOF Activation," shows functional interfaces.

SSAR Section 13.3.2.2 states that the ESP site is adjacent to a preexisting nuclear facility with existing State and local emergency plans. The SSAR, therefore, relies on and refers to the information contained in these existing plans. No significant differences exist between the major features proposed in the application and the major features discussed in existing plans and relied on in the application.

The COVERP and county RERPs identify the response organizations for the jurisdictions. Appendix 1, "Task Assignments," to the COVERP provides a detailed listing of specific tasks that various Federal, State, and local agencies and organizations would be responsible for in a radiological emergency. Section X, Volume 1, of the "Commonwealth of Virginia Emergency Operations Plan," and Annex I-A, "Task Assignments," to Volume II of the "Commonwealth of Virginia Emergency Operations Plan—Peacetime Disasters," provide additional responsibilities. The VDEM would coordinate requests by Dominion for support services from these agencies and organizations.

Section I.A, "Authorities," of the COVERP lists the legal bases of authority as (1) Commonwealth of Virginia Emergency Services and Disaster Law of 1973, Title 44, Chapter 3.2, Code of Virginia, as amended, and (2) Radiation Control Act, Title 32.1, Chapter 6, Article 8, Code of Virginia. The county RERPs also list these two legal bases, in addition to their respective local enabling ordinances, which provide for the development of local emergency operation plans and support organizations.

SSAR Section 13.3.2.2.a.6 states that the existing licensed facilities (i.e., North Anna Units 1 and 2) maintain letters of agreement with various Federal, State, and local organizations. All the organizations listed in SSAR Section 13.3.2.2.a.6 have submitted updated letters of agreement which acknowledge the ESP application and describe contacts and arrangements pertaining to the concept of operations for the various agencies and organizations.

13.3.3.2.2 Regulatory Evaluation

SSAR Section 13.3.2.2 presents the major features of the applicant's emergency plan. The applicant stated that it prepared the information presented in SSAR Section 13.3.2.2 in accordance with 10 CFR 52.17(b)(2)(i) and Appendix E to 10 CFR Part 50, and considered the guidance in Supplement 2. SSAR Section 13.3.2.2.2 states that Supplement 2 presents planning standards and evaluation criteria applicable to a major features emergency plan.

In its review of the application, the staff considered the regulatory requirements in 10 CFR 52.17(b)(2)(i), 10 CFR 52.18, and Sections III and IV.A of Appendix E to 10 CFR Part 50. Under 10 CFR 52.17(b)(2)(i), an applicant for an ESP may propose major features of the emergency plans for NRC review and approval, in consultation with FEMA, in the absence of complete and integrated emergency plans. Under 10 CFR 52.18, after consultation with FEMA, the NRC will determine whether the major features of emergency plans submitted under 10 CFR 52.17(b)(2)(i) are acceptable. RS-002 and Supplement 2 provide guidance concerning the review and evaluation of emergency planning information given in an ESP application. Supplement 2 also provides specific evaluation criteria for major features of emergency plans,

including those which apply to major feature A, "Assignment of Responsibility—Organization Control."

Major feature A calls for the applicant to identify EROs, including functions and responsibilities for major elements of response, and the legal bases for State and local authorities. The application should also describe contacts and arrangements between agencies and other support organizations having a response role within the EPZs, and it should include any written letters of agreement.

13.3.3.2.3 Technical Evaluation

SSAR Section 13.3.2.2.2 identifies Federal, State, local, and private agencies and organizations that the applicant intends to be part of the overall ERO, as well as detailed functions and responsibilities for the major elements of emergency response for each agency and organization. The NAEP, COVRERP, and county RERPs supplement this information with additional details regarding specific emergency responsibilities. The staff finds that this description is adequate because it identifies the applicable response organizations and provides detailed descriptions concerning their various response capabilities.

The staff reviewed the COVRERP and county RERPs and finds that they include references to the specific acts, codes, or statutes that form the legal bases for their respective authorities. SSAR Section 13.3.2.2.a.6 lists the various Federal, State, and local organizations that have submitted updated letters of agreement in support of the NAPS site, which includes the ESP site. Accordingly, the staff finds that these letters of agreement are adequate. Sections 13.3.2, 13.3.3.3, 13.3.3.4, 13.3.3.7, 13.3.3.10, 13.3.3.11, and 13.3.3.13 of this SER describe contacts and arrangements pertaining to the concept of operations developed among Federal, State, and local agencies and other support organizations having an emergency response role within the EPZs.

13.3.3.2.4 Conclusions

As discussed above, the applicant has identified the EROs, including the functions and responsibilities for major elements of response, and the legal bases for State and local authorities. In addition, the applicant has described contacts and arrangements among the agencies and other support organizations having a response role within the EPZ. Based on its review, the staff concludes that the proposed major feature A is consistent with the guidelines in RS-002 and Supplement 2. Therefore, this feature is acceptable and meets the requirements of 10 CFR 52.17(b)(2)(i), 10 CFR 52.18, and Sections III and IV.A of Appendix E to 10 CFR Part 50, insofar as it describes the essential elements of advanced planning that have been considered for organization control, as set forth above.

13.3.3.3 Onsite Emergency Organizations (Supplement 2, Major Feature B)

13.3.3.3.1 Technical Information in the Application

SSAR Figure 13.3-3 illustrates the interfaces for the functional areas of emergency activity. In addition, SSAR Section 13.3.2 states that the applicant's emergency plan takes advantage of the emergency planning resources, capabilities, and organization that Virginia Power has already established and currently maintains at the NAPS site. The applicant stated that it would

extend the existing emergency planning and preparedness activities to the proposed new unit(s). SSAR Section 13.3.2.2 states that the ESP site is adjacent to a preexisting nuclear facility with existing State and local emergency plans. The SSAR, therefore, relies on and refers to the information contained in these existing plans. No significant differences exist between the major features proposed in the application and the major features discussed in existing plans and relied on in the application.

NAEP Section 5.4, "Coordination with Participating Government Agencies," provides further details associated with the existing interfaces for functional areas of emergency activity and includes applicable group interface block diagrams in NAEP Figures 5.3 and 5.4.

SSAR Section 13.3.2.2.b.2 states that the existing units (i.e., North Anna Units 1 and 2) maintain agreements for police, firefighting, rescue squad, medical, and hospital services and that these agreements would apply to the ESP site. Appendix 10.1 to the NAEP contains letters of agreement with various Federal, State, and local organizations. As discussed in Section 13.3.2 of this SER, the staff asked the applicant, in RAI 13.3-1, to explain how the existing arrangements address any impact that an additional reactor(s) at the site would have on government emergency planning responsibilities. In its response, the applicant provided letters of agreement, which had been revised to specifically acknowledge an awareness by support agencies of the ESP application for the NAPS site, and to state that the existing agency arrangements would apply to a prospective additional reactor(s) at the NAPS site.

13.3.3.3.2 Regulatory Evaluation

SSAR Section 13.3.2.2 presents the major features of the applicant's emergency plan. The applicant stated that it prepared the information presented in SSAR Section 13.3.2.2 in accordance with 10 CFR 52.17(b)(2)(i) and Appendix E to 10 CFR Part 50, and considered the guidance in Supplement 2. SSAR Section 13.3.2.2.2 states that Supplement 2 presents planning standards and evaluation criteria applicable to a major features emergency plan.

In its review of the application, the staff considered the regulatory requirements in 10 CFR 52.17(b)(2)(i), 10 CFR 52.18, and Sections III and IV.A of Appendix E to 10 CFR Part 50. Under 10 CFR 52.17(b)(2)(i), an applicant for an ESP may propose major features of the emergency plans for NRC review and approval, in consultation with FEMA, in the absence of complete and integrated emergency plans. Under 10 CFR 52.18, after consultation with FEMA, the NRC will determine whether the major features of emergency plans submitted under 10 CFR 52.17(b)(2)(i) are acceptable. RS-002 and Supplement 2 provide guidance concerning the review and evaluation of emergency planning information given in an ESP application. Supplement 2 also provides specific evaluation criteria for the major features of emergency plans, including those which apply to major feature B, "Onsite Emergency Organizations."

Major feature B calls for the applicant to identify interfaces between and among the onsite functional areas of emergency activity, local services support, and State and local government response organizations, including the services to be provided by local agencies.

13.3.3.3.3 Technical Evaluation

The applicant identified the interfaces for the functional areas of emergency activity in SSAR Figure 13.3-3, which depicts a block diagram connection between the onsite station facilities

and the offsite Federal, State, and local EROs. In addition to the block diagram illustration, the applicant gave detailed descriptions throughout SSAR Section 13.3.2.2.2 of the functional interfaces and support that various Federal, State, and local entities would provide.

SSAR Section 13.3.2.2.2.b.2 states that the existing units (i.e., North Anna Units 1 and 2) maintain agreements for police, firefighting, rescue squad, medical, and hospital services and that these agreements would apply to the ESP site. In addition, SSAR Section 13.3.2.2.2.a.6 states that these letters of agreement are maintained within the NAEP.

The staff reviewed the NAEP and found that NAEP Section 5.4 gives further details associated with the existing interfaces for the functional areas of emergency response, including various related services that would be provided. In addition, NAEP Figures 5.3 and 5.4 provide comparable block diagrams which illustrate these functional interfaces. The staff finds that this information adequately identifies the interfaces between and among the onsite functional areas of emergency activity, local services support, and State and local government response organizations.

The staff also reviewed the existing letters of agreement in Appendix 10.1 to the NAEP, which provide additional descriptions of specific capabilities and various onsite and offsite organizational interfaces. As discussed in Section 13.3.2 of this SER, the letters of agreement were updated to reflect that the existing arrangements would apply to a prospective additional reactor(s) at the NAPS site, consistent with the application. Accordingly, the staff finds that the information given in SSAR Section 13.3.2.2.2, the NAEP, and the updated letters of agreement adequately identify the services to be provided by local agencies for handling emergencies, including a description of the arrangements for such services.

13.3.3.4 Conclusions

As discussed above, the applicant has identified the interfaces between and among the onsite functional areas of emergency activity, local services support, and State and local government response organizations for the ESP site. In addition, the applicant has identified the services and described the arrangements to be provided by various local agencies, and it has submitted adequate letters of agreement. Based on its review, the staff concludes that the proposed major feature B is consistent with the guidelines in RS-002 and Supplement 2. Therefore, this feature is acceptable and meets the requirements of 10 CFR 52.17(b)(2)(i), 10 CFR 52.18, and Sections III and IV.A of Appendix E to 10 CFR Part 50, insofar as it describes the essential elements of advanced planning that have been considered for the onsite ERO, as set forth above.

13.3.3.4 Emergency Response Support and Resources (Supplement 2, Major Feature C)

13.3.3.4.1 Technical Information in the Application

SSAR Section 13.3.2.2.2.c states that circumstances prompting the implementation of an emergency response may necessitate augmentation of Dominion's resources. Dominion may request such assistance from the Federal Government, radiological laboratories, and nuclear or other facilities and organizations.

SSAR Section 13.3.2.2.c.1 states that the Federal Response Plan (FRP) provides the mechanism for coordinating the delivery of Federal assistance and resources to augment efforts of State and local governments overwhelmed by a major disaster or emergency. The FRP supports implementation of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. § 5121, et seq.), as well as individual agency statutory authorities, and supplements other Federal emergency operations plans developed to address specific hazards. The U.S. Department of Homeland Security has primary responsibility for coordinating Federal emergency preparedness, planning, management, and disaster assistance functions, including the establishment of Federal disaster assistance policy.

In addition, the Federal Radiological Emergency Response Plan (FRERP) outlines the Federal Government's concept of operations for responding to radiological emergencies. This plan also describes Federal policies and planning considerations which form the basis for the FRERP concept of operations and agency-specific Federal response plans. The FRERP also specifies the authority and responsibility of each Federal agency that may have a significant role in such emergencies. Under the provisions of the FRERP, DOE may respond to a State or lead Federal agency request for assistance by dispatching a radiological assistance program (RAP) team. If the situation warrants more assistance than a RAP team can provide, DOE would alert or activate additional resources. These resources may include the establishment of a Federal Radiological Monitoring and Assessment Center (FRMAC) to be used as an on-scene coordination center for Federal radiological assessment activities.

NAEP Section 5.4.7; "Federal Radiological Monitoring and Assessment Center (FRMAC) Operations Plan," states that the FRMAC may be activated when a major radiological emergency exists. The Federal Government would respond when a State, other government entity with jurisdiction, or a regulated entity requests Federal support. The station emergency manager, recovery manager, or corporate response manager may request FRMAC assistance directly or through the NRC (as lead Federal agency).

SSAR Section 13.3.2.2 states that the ESP site is adjacent to a preexisting nuclear facility with existing State and local emergency plans. The SSAR, therefore, relies on and refers to the information contained in these existing plans. No significant differences exist between the major plan features proposed in the application and those discussed in existing plans and relied on in the application.

COVRERP Section VII, "Organization," states that Federal response teams represented in the emergency operations facility (EOF), State emergency operations center (EOC), and/or other locations would support the State organization. Additional Federal assistance may be obtained through the State EOC from (or through) DOE, the NRC, and FEMA. Section I.E, "Department of Emergency Management," of Appendix 1 to the COVRERP states that VDEM would notify all other State agencies and support organizations which have emergency task assignments identified in the COVRERP. In addition, VDEM would request assistance from the Federal Government in accordance with the FRERP. Section II, "Federal Agencies," of Appendix 1 to the COVRERP provides further detailed descriptions of available Federal resources, as well as the procedures for requesting assistance. The county RERPs state that local requests for Federal assistance would be made through the State EOC. In addition, the county RERPs identify the facilities and organizations that would provide assistance in an emergency and the positions that are responsible for contacts and arrangements with other organizations.

SSAR Section 13.3.2.2.c.2 identifies the radiological count laboratory resources that are available through the Commonwealth of Virginia to respond to emergencies at the NAPS site. This section also provides estimated travel times to the NAPS site for each laboratory. If necessary, additional resources could be obtained through purchase agreements with private institutions. The following list is consistent with NAEP Section 5.3.2, "Vendor and Contractor Support":

- The University of Virginia, Charlottesville, Virginia (45 min)
- Virginia Commonwealth Laboratories, Richmond, Virginia (75 min)
- Medical College of Virginia, Richmond, Virginia (75 min)
- Newport News Shipbuilding & Drydock, Newport News, Virginia (3.5 hours)
- VDH Radiological Health Program Mobile Laboratory (60 min)

COVERERP Section VII.C states that VDEM coordinates the overall emergency response, while VDH (through the Bureau of Radiological Health (BRH)) provides technical advice and assistance on radiological exposure control and radiological monitoring. Appendix 4, "Emergency Response," to the COVERERP states in Section II, "Operational Concepts and Procedures," that, when notified, BRH initiates accident assessment to provide guidance and assistance to the local government and the State EOC. BRH would perform accident assessment, monitoring, and sample collection.

Appendix 5, "Accident Assessment," to the COVERERP states that the State Radiological Emergency Response Team (RERT) has a mobile laboratory which can be operational onsite within 3 hours of notification and is capable of 24-hour operation. The mobile lab would be positioned at one of the staging areas located near the nuclear station. Personnel from the nuclear facility or a Federal agency may supplement the RERT. Local governments would conduct radiological monitoring in accordance with their county RERPs and report the results to the EOF.

SSAR Section 13.3.2.2.c.4 addresses contacts and arrangements for assistance from the various response organizations. Personnel within the EOF would coordinate outside assistance, which would include interfaces with all levels of government, private sector response organizations, and other commercial nuclear operators. In addition to prearranged support, contacts and arrangements for assistance from Federal Government, radiological laboratories, and nuclear or other facilities and organizations could be requested, if circumstances prompting the implementation of an emergency response necessitated augmentation of Dominion's resources.

NAEP Section 5.3, "Augmentation of Onsite Emergency Organization," states that assistance may be requested from any organization deemed necessary to mitigate the conditions causing the emergency, and Appendix 10.1, "Letters of Agreement," to the NAEP lists participating agencies and support services, with whom emergency support services have been negotiated. Appendix 10.1 to the NAEP contains letters of agreement for two of the five listed radiological laboratory resources (i.e., the Medical College of Virginia Hospitals and Physicians/Virginia Commonwealth University (MCVH/VCU) and VDH).

The letter of agreement for the MCVH/VCU states that the "Radiation Emergency Plan—MCVH/VCU—Virginia Power" outlines its 24-hour services in greater detail. Appendix 10.9 to the NAEP references the February 16, 2000, revision of the plan. This plan

addresses the capabilities for providing medical care for radiation emergencies in the central Virginia region and supports the Dominion Resources nuclear reactor stations in the event of occupational or major accidents; this would include the ESP site. In addition, the letter of agreement lists specific services that would be provided, upon verification of an emergency at the ESP site, and includes treatment of injured and radioactively contaminated patients, monitoring and counting equipment for the detection and analysis of radioactivity or radiation, and decontamination supplies.

The letter of agreement with VDH outlines its commitment to respond to any radiological emergency at NAPS, with VDEM serving as lead agency for the Commonwealth under the framework of the COVRERP. As reflected on the VDH Web site, the Radiological Health Program administered by VDH has an RERT equipped with field instrumentation for monitoring radiation and a mobile laboratory for performing laboratory analysis, so that a rapid assessment of a radiological incident can be made and appropriate recommendations provided to State and local officials. The Radiological Health Program maintains a 24-hour duty officer who is available to respond to any radiological incident or to request additional resources, if needed. The Radiological Health Program's emergency preparedness activities are coordinated with VDEM, which is responsible for the coordination of the State's response and the State emergency plan.

SSAR Section 13.3.2.2.2.i addresses contacts and arrangements for assistance associated with accident assessment; SSAR Section 13.3.2.2.2.l provides contacts and arrangements for medical and public health support. In addition, consistent with the application, the NAEP addresses contacts and arrangements with vendor and contractor support in NAEP Section 5.3.2; local services support in NAEP Section 5.3.3, and participating government agencies in NAEP Section 5.4. Sections 13.3.2, 13.3.3.2, 13.3.3.3, 13.3.3.10, and 13.3.3.13 of this SER also describe contacts and arrangements made with emergency response support organizations.

SSAR Section 13.3.2.2.2.c identifies radiological laboratories and their general capabilities and expected availability to provide radiological monitoring and analyses services during an emergency. In RAI 13.3-4, the staff asked the applicant to clarify the listing of radiological count laboratory resources in SSAR Section 13.3.2.2.2.c.2, in regard to whether additional resources exist beyond the five listed that could be obtained on an as-needed basis. In addition, the staff asked the applicant to identify the general capabilities and expected availability to provide radiological monitoring and analyses services during an emergency in support of the ESP site for (1) the University of Virginia, Charlottesville, Virginia, (2) Virginia Commonwealth Laboratories, Richmond, Virginia, and (3) Newport News Shipbuilding & Drydock, Newport News, Virginia. In its response, the applicant stated that the listing of private institutions is a sampling of relatively nearby sources of assistance and that, if such assistance should be needed, it would be procured in a timely manner from any available source.

In addition, the applicant stated that the University of Virginia has a level-one trauma center and teaching hospital. Its Office of Environmental Health and the Radiation Safety manages all aspects of the use of radioactive materials and radiation-producing equipment. The Virginia Commonwealth Laboratories provide analytical testing services and may be called on to respond to various health and environmental emergencies in Virginia. Its Bureau of Analytical Services performs analytical testing for State regulatory, environmental, and public health programs. It also has laboratories that can analyze water, sediment, tissue, air, soil, and other

samples for the presence of metals and radiation. Finally, Newport News Shipbuilding & Dry Dock is the nation's sole designer, builder, and refueler of nuclear-powered aircraft carriers. It has the necessary staff and facilities to support radiological surveys, monitoring, and analysis functions; it has provided services to more than half of the country's nuclear utilities.

In RAI 13.3-14(a), the staff asked the applicant for more information regarding the availability and capability of laboratories referred to in the State and local emergency plans. The applicant responded to this RAI in its submittal dated October 20, 2004. The applicant stated that these capabilities are outlined in Appendix 17.5 to the VDH Radiological Health Program's plan, which addresses 24-hour availability, with the use of a large and small mobile lab in addition to fixed facilities at the Division of Consolidated Laboratory Services.

13.3.3.4.2 Regulatory Evaluation

SSAR Section 13.3.2.2 presents the major features of the applicant's emergency plan. The applicant stated that it prepared the information presented in SSAR Section 13.3.2.2 in accordance with 10 CFR 52.17(b)(2)(i) and Appendix E to 10 CFR Part 50, and considered the guidance in Supplement 2. SSAR Section 13.3.2.2.2 states that Supplement 2 presents planning standards and evaluation criteria applicable to a major features emergency plan.

In its review of the application, the staff considered the regulatory requirements in 10 CFR 52.17(b)(2)(i), 10 CFR 52.18, and Sections III, IV.A, IV.B, and IV.D of Appendix E to 10 CFR Part 50. Under 10 CFR 52.17(b)(2)(i), an applicant for an ESP may propose major features of the emergency plans for NRC review and approval, in consultation with FEMA, in the absence of complete and integrated emergency plans. Under 10 CFR 52.18, after consultation with FEMA, the NRC will determine whether the major features of emergency plans submitted under 10 CFR 52.17(b)(2)(i) are acceptable. RS-002 and Supplement 2 provide guidance concerning the review and evaluation of emergency planning information given in an ESP application. Supplement 2 also provides specific evaluation criteria for major features of emergency plans, including those which apply to major feature C, "Emergency Response Support and Resources."

Major feature C calls for the applicant to describe contacts and arrangements for requesting Federal assistance, as well as assistance from radiological laboratories and nuclear or other facilities and organizations. The application should also identify the general capabilities and expected availability of radiological monitoring and analysis services.

13.3.3.4.3 Technical Evaluation

SSAR Section 13.3.2.2.2.c describes the basic Federal emergency response plans that could be called upon to assist the licensee, as well as those of the State and local governments.

SSAR Section 13.3.2.2.2.c.3 addresses assistance from other facilities and organizations, including Dominion Resources and its subsidiaries, Virginia Power and Dominion, and the Institute of Nuclear Power Operations. The Surry Power Station in Virginia and the Millstone Power Station in Connecticut can also provide assistance. In addition, Federal agencies and various radiological laboratories, as identified in SSAR Section 13.3.2.2.2.c, can provide assistance. NAEP Sections 5.3.2, 5.3.3, and 5.4 also identify sources of assistance in an

emergency. Section 13.3.2 of this SER discusses the associated description of contacts and arrangements made with response organizations.

In RAI 13.3-14(a), the staff asked for information regarding the availability and capability of laboratories referred to in State and local emergency plans. The staff identified the consideration of this information as Open Item 13.3-1. The staff reviewed the applicant's response dated October 20, 2004, and finds it acceptable. Therefore, Open Item 13.3-1 is resolved. The staff finds that the applicant has adequately described the provisions that exist for requesting emergency response support and resources.

13.3.3.4.4 Conclusions

As discussed above, the applicant has described provisions for requesting Federal assistance, and it has identified nuclear and other facilities and organizations that can be relied on to provide assistance in an emergency, including the general capabilities and availability of radiological laboratories. In addition, the applicant has described the contacts and arrangements made with the response organizations. Based on its review, the staff concludes that the proposed major feature C is consistent with the guidelines in RS-002 and Supplement 2. Therefore, this feature is acceptable and meets the requirements of 10 CFR 52.17(b)(2)(i), 10 CFR 52.18, and Sections III, IV.A, IV.B, IV.C, IV.D, and IV.E of Appendix E to 10 CFR Part 50, insofar as it describes the essential elements of advanced planning that have been considered for emergency response support and resources, as set forth above.

13.3.3.5 Emergency Classification System (Supplement 2, Major Feature D)

13.3.3.5.1 Technical Information in the Application

SSAR Section 13.3.2.2.2.d states that the applicant would use an emergency classification scheme with the four classifications listed below in the event of an emergency. The applicant would use EALs to determine when and what type of protective measures should be considered within and outside the NAPS site boundary to protect health and safety. The applicant stated that the COVRERP and local government RERPs would provide an emergency classification level scheme consistent with that established by Dominion, as required by 44 CFR 350.5(a)(4). This scheme includes the following classifications:

- notification of unusual event
- alert
- site area emergency
- general emergency

SSAR Section 13.3.2 states that the emergency plan takes advantage of the emergency planning resources, capabilities, and organization that Virginia Power has already established and currently maintains at the NAPS site. The applicant would extend the existing emergency planning and preparedness activities to include the proposed new unit(s). SSAR Section 13.3.2.2 states that the ESP site is adjacent to a preexisting nuclear facility with existing State and local emergency plans. The SSAR, therefore, relies on and refers to the information contained in these existing plans. No significant differences exist between the major features proposed in the application and the major features discussed in existing plans and relied on in the application.

COVERERP Section VII.A, "Emergency Classification Levels for Nuclear Facilities," and the county RERPs provide an emergency classification scheme which is consistent with the four classifications listed above. With regard to specific EALs, SSAR Section 13.3.2.2.d.1 states that the COL or CP applicant would propose site-specific EALs in its COL or CP application and that the COL or CP applicant would discuss and agree to the EALs with the Commonwealth of Virginia and local government authorities. The COL or CP applicant would then submit the EALs to the NRC for approval.

13.3.3.5.2 Regulatory Evaluation

SSAR Section 13.3.2.2 presents the major features of the applicant's emergency plan. The applicant stated that it prepared the information presented in SSAR Section 13.3.2.2 in accordance with 10 CFR 52.17(b)(2)(i) and Appendix E to 10 CFR Part 50, and considered the guidance in Supplement 2. SSAR Section 13.3.2.2.2 states that Supplement 2 presents planning standards and evaluation criteria applicable to a major features emergency plan.

In its review of the application, the staff considered the regulatory requirements of 10 CFR 52.17(b)(2)(i), 10 CFR 52.18, and Sections III and IV.C of Appendix E to 10 CFR Part 50. Under 10 CFR 52.17(b)(2)(i), an applicant for an ESP may propose major features of the emergency plans for NRC review and approval, in consultation with FEMA, in the absence of complete and integrated emergency plans. Under 10 CFR 52.18, after consultation with FEMA, the NRC will determine whether the major features of emergency plans submitted under 10 CFR 52.17(b)(2)(i) are acceptable. RS-002 and Supplement 2 provide guidance concerning the review and evaluation of emergency planning information given in an ESP application. Supplement 2 also provides specific evaluation criteria for the major features of emergency plans, including those which apply to major feature D, "Emergency Classification System."

Major feature D calls for the applicant to establish a standard emergency classification scheme that is consistent with Appendix 1 to NUREG-0654/FEMA-REP-1. Major feature D also calls for the State and local organizations to establish an emergency classification scheme that is consistent with that proposed by the applicant.

13.3.3.5.3 Technical Evaluation

As stated in SSAR Section 13.3.2.2.d, the staff finds that the applicant would use an emergency classification scheme consisting of the four classifications required by 44 CFR 350.5(a)(4). Based on its review, the staff finds that these four proposed emergency classifications are consistent with those in Appendix 1 to NUREG-0654/FEMA-REP-1. The staff also finds that the emergency classification schemes established by the State in COVERERP, Section VII.A, and by the local organizations in the county RERPs are consistent with that proposed by the applicant.

13.3.3.5.4 Conclusions

As discussed above, the applicant has specified a standard emergency classification scheme, which is consistent with that set forth in Appendix 1 to NUREG-0654/FEMA-REP-1, and with those established by the State and local EROs. Based on its review, the staff concludes that the proposed major feature D is consistent with the guidelines in RS-002 and Supplement 2. Therefore, this feature is acceptable and meets the requirements of 10 CFR 52.17(b)(2)(i).

10 CFR 52.18, and Sections III and IV.C of Appendix E to 10 CFR Part 50, insofar as it describes the essential elements of advanced planning that have been considered for the emergency classification system, as set forth above.

13.3.3.6 Notification Methods and Procedures (Supplement 2, Major Feature E)

13.3.3.6.1 Technical Information in the Application

SSAR Section 13.3.2.2.2.e describes the bases for notifying response organizations. Reference is made to SSAR Section 13.3.2.2.2.d, which states that the initial classification and declaration of an emergency class would be in accordance with the four categories of an emergency classification scheme, which is consistent with Appendix 1 to NUREG-0654/FEMA-REP-1. The normal process for alerting, notifying, and mobilizing the ERO is multifaceted, including alarms, announcements, pagers, telephones, and online messages. The applicant would make subsequent notifications, including providing specific information pertaining to the emergency, to the Commonwealth of Virginia and the NRC and would activate the Emergency Response Data System (ERDS).² Site personnel at NAPS, including security personnel and/or personnel from the Virginia Department of Game and Inland Fisheries, would alert individuals within the NAPS exclusion area.³

In SSAR Section 13.3.2.2.2.e, the applicant further stated that the Commonwealth of Virginia and local authorities, with the assistance of the Virginia State Police (VSP), would alert the public within the 10-mile EPZ. The sounding of the alert and notification system (ANS) sirens already installed around the NAPS site is the primary method of alerting the public. The applicant stated that the existing ANS would support the new units. Other alerting methods might include telephone communications; television and radio communications via the emergency alert system (EAS) stations, public address systems, bullhorns from patrol cars, and personal contacts. The applicant also stated that written, preplanned messages would be consistent with the emergency classification level scheme in Appendix 1 to NUREG-0654/FEMA-REP-1. The messages would give instructions on the nature of the emergency and information concerning the recommended protective action, sheltering, thyroid-blocking potassium iodide (KI), or evacuation.

SSAR Section 13.3.2 states that the emergency plan takes advantage of the emergency planning resources, capabilities, and organization that Virginia Power has already established and currently maintains at the NAPS site. The applicant would extend the existing emergency planning and preparedness activities to include the proposed new unit(s). SSAR

²The ERDS is a direct, near real-time electronic data link between the licensee's onsite computer system and the NRC Operations Center that provides for the automated transmission of a limited data set of selected parameters (see Section VI.1 of Appendix E to 10 CFR Part 50).

³The *exclusion area* refers to that area surrounding the reactor in which the reactor licensee has the authority to determine all activities, including exclusion or removal of personnel and property from the area (see 10 CFR 50.2, "Definitions"). For purposes of the NAEP, the area within 5000 feet (ft) of the former North Anna Unit 3 containment is defined as the NAPS exclusion area (see NAEP Section 6.3.2).

Section 13.3.2.2 states that the ESP site is adjacent to a preexisting nuclear facility with existing State and local emergency plans. The SSAR, therefore, relies on and refers to the information contained in these existing plans. No significant differences exist between the major features proposed in the application and the major features discussed in existing plans and relied on in the application.

COVERERP Section VIII.C, "Notification and Warning," states that the notification and warning process is based on the four emergency classifications (i.e., notification of unusual event, alert, site area emergency, and general emergency). Section II.B, "Procedures," of Appendix 3 to the COVERERP describes procedures for notifying State agencies and risk jurisdictions, which are then responsible for mobilizing emergency personnel according to task lists. The document also provides authority for direct notification, should the Virginia EOC be unreachable. The county RERPs describe the bases for notifying, alerting, and mobilizing emergency responders. Appendix 1 to the county RERPs contains a detailed procedure of notification and mobilization actions for emergency response personnel.

Section II.C, "Public Alerting and Warning," of Appendix 3 to the COVERERP describes procedures for public alerting and notifying. Primary responsibility for public alert and notification resides with the State. This section also describes the process for notifying transient populations and special facilities, including backup notification methods. The EAS would be the primary method of providing public instruction.

Sirens do not cover Orange County and parts of the other risk jurisdictions. Section III.G, "Alert and Warning Means," of the Orange County RERP describes the alert and notification procedures that sheriff deputy cruisers (equipped with loudspeakers) would perform, backed up by EAS broadcasts and telephone notifications. According to the RERP, State and local officials would provide instructions using EAS broadcasts. In addition, State and local officials would make special announcements to the three largest population centers by fax, telephone, and EAS broadcasts, with internal route alerting by local police.

Section VIII.D of the Louisa County RERP describes the public alert and notification methods. Primary alerting is by the emergency siren system in place for the NAPS site. Louisa County can initiate its emergency alert sirens. Local television and radio stations that are part of the EAS would provide notification and instruction. Appendix 2 to the Louisa County RERP contains the procedure for the public information officer to release emergency instructions using the EAS stations. The remaining county RERPs are similar to that for Louisa County.

NAEP Section 6.0, "Emergency Measures," Section 6.1, "Activation of the Emergency Plan," Section 6.3, "Protective Actions," and Section 7.6, "Early Warning System," provide additional information concerning the bases and methods for communicating with response organizations and the public.

13.3.3.6.2 Regulatory Evaluation

SSAR Section 13.3.2.2 presents the major features of the applicant's emergency plan. The applicant stated that it prepared the information presented in SSAR Section 13.3.2.2 in accordance with 10 CFR 52.17(b)(2)(i) and Appendix E to 10 CFR Part 50, and considered the guidance in Supplement 2. SSAR Section 13.3.2.2.2 states that Supplement 2 presents planning standards and evaluation criteria applicable to a major features emergency plan. The

staff finds that the applicant identified the regulatory requirements and guidance applicable to the proposed major features of emergency plans for an ESP application.

In its review of the application, the staff considered the regulatory requirements in 10 CFR 52.17(b)(2)(i), 10 CFR 52.18, and Sections III and IV.D of Appendix E to 10 CFR Part 50. Under 10 CFR 52.17(b)(2)(i), an applicant for an ESP may propose major features of the emergency plans for NRC review and approval, in consultation with FEMA, in the absence of complete and integrated emergency plans. Under 10 CFR 52.18, after consultation with FEMA, the NRC will determine whether the major features of emergency plans submitted under 10 CFR 52.17(b)(2)(i) are acceptable. RS-002 and Supplement 2 provide guidance concerning the review and evaluation of emergency planning information given in ESP applications. Supplement 2 also provides specific evaluation criteria for major features of emergency plans, including those which apply to major feature E, "Notification Methods and Procedures."

Major feature E calls for the applicant to describe the mutually agreeable bases for notifying response organizations, consistent with the emergency classification scheme in Appendix 1 to NUREG-0654/FEMA-REP-1, including the method for alerting, notifying, and mobilizing personnel. The application should also describe the administrative and physical means for notifying and promptly instructing the public within the 10-mile EPZ.

13.3.3.6.3 Technical Evaluation

SSAR Section 13.3.2.2.2.e.1 states that notifications to the Commonwealth of Virginia and risk jurisdictions would be in accordance with SSAR Section 13.3.2.2.2.d, which lists the four emergency classifications of notification of unusual event, alert, site area emergency, and general emergency. The COVRERP and county RERPs all use the same four emergency classifications, which are consistent with those in Appendix 1 to NUREG-0654/FEMA-REP-1. The staff finds that each organization has described mutually agreeable bases for the notification of response organizations and that each is consistent with the emergency classification scheme in Appendix 1 to NUREG-0654/FEMA-REP-1.

SSAR Section 13.3.2.2.2.e.2 states that the normal process for alerting, notifying, and mobilizing the EROs includes, but is not limited to, alarms, announcements, pagers, telephones, and online messages. Section II.B of Appendix 3 to the COVRERP states that the facility operator would notify local governments within the 10-mile EPZ and the Virginia EOC by the Insta-Phone. The staff finds that the COVRERP and county RERPs provide detailed notification procedures and that this information adequately describes the methods for alerting, notifying, and mobilizing emergency response personnel.

As stated in SSAR Section 13.3.2.2.2.e, the staff finds that Dominion would rely on the already-installed ANS around the NAPS site to support the new units, and the Commonwealth of Virginia and risk jurisdictions have ultimate responsibility for warning the public. While sounding the ANS sirens remains the primary method of alerting the public, other alerting methods may include telephone, television and radio (via the EAS stations), public address systems, bullhorns from patrol cars, and personal contact. The COVRERP and the county RERPs provide procedures for public alerting and notifying. The staff finds that this information adequately describes the administrative and physical means for notifying and promptly instructing the public within the 10-mile EPZ.

13.3.3.6.4 Conclusions

As discussed above, the applicant has described the mutually agreeable bases for notifying response organizations, which is consistent with that set forth in Appendix 1 to NUREG-0654/FEMA-REP-1, and includes the method for alerting, notifying, and mobilizing personnel. In addition, the applicant has described the administrative and physical means for notifying and promptly instructing the public within the 10-mile EPZ. Based on its review, the staff concludes that the proposed major feature E is consistent with the guidelines in RS-002 and Supplement 2. Therefore, this feature is acceptable and meets the requirements of 10 CFR 52.17(b)(2)(i), 10 CFR 52.18, and Sections III and IV.D of Appendix E to 10 CFR Part 50, insofar as it describes the essential elements of advanced planning that have been considered for notification methods and procedures, as set forth above.

13.3.3.7 Emergency Communications (Supplement 2, Major Feature F)

13.3.3.7.1 Technical Information in the Application

SSAR Section 13.3.2.2.2.f states that Dominion would provide the means for prompt communications with the Commonwealth of Virginia, risk jurisdictions, and Federal Government EROs; the means to alert and activate the ESP site ERO; and arrangements for communicating with medical support facilities. The ESP site ERO would be alerted for activation by way of multiple communications methods (e.g., plant alarms and/or announcements, pagers, telephones, online messages). Dominion would maintain the capability of notifying both the Commonwealth of Virginia and the risk jurisdictions within 15 min after declaring an emergency.

NAEP Section 7.2.2.4, "Dedicated NRC Communications," states that separate telephone lines are dedicated for communications with the NRC, including the following:

- Emergency Notification System (ENS)
- Health Physics Network (HPN)
- Reactor Safety Counterpart Link (RSCL)
- Protective Measures Counterpart Link (PMCL)
- ERDS

SSAR Section 13.3.2.2.2.f.5 states that the ESP site can communicate with the hospital service described in SSAR Section 13.3.2.2.2.i. The ESP site would also be able to communicate with an ambulance by use of an ultra-high frequency (UHF) radio or mobile telephone, and the ambulance can communicate with the hospital by way of the hospital emergency and administrative radio (HEAR) system or mobile telephone.

NAEP Section 6.4.3, "Medical Transportation," states that the station can communicate with MCVH. In addition, Appendix 10.9, "Radiation Emergency Plan—MCVH/VCU—Virginia Power," to the NAEP states in Section VII.C, "In Route Communications During Transportation to MCVH," that the Department of Emergency Medicine at MCVH has three systems for communicating with incoming ambulances (i.e., the HEAR system, coronary observation radio, and cellular telephone).

SSAR Section 13.3.2.2 states that the ESP site is adjacent to a preexisting nuclear facility with existing State and local emergency plans. The SSAR, therefore, relies on and refers to the

information contained in these existing plans. No significant differences exist between the major features proposed in the application and the major features discussed in existing plans and relied on in the application.

Section II.A, "Notification and Warning," of Appendix 3 to the COVERERP describes provisions for communications between the NAPS site and the State. Insta-Phone (a dedicated hot-loop system) would serve as the primary means of notification, which would permit simultaneous notification of the Virginia EOC and the local governments within the 10-mile EPZ. Radio, commercial telephones, and facsimile machines would serve as a backup. Local governments within the 50-mile EPZ would be notified using the Virginia Criminal Information Network, with commercial telephone as backup. The county RERPs also specify these same types of communication systems.

Appendix 9, "Communications," to the COVERERP states that the primary means of communication between the Virginia EOC and the Federal EROs would be commercial telephone. The FEMA Federal national radio system or national warning system would be used as a backup. Appendix 9 to the COVERERP also describes the State methods for alerting and activating emergency response personnel.

COVERERP Section VIII.C, "Notification and Warning," states that, when notified by the NAPS site, the Virginia EOC and the local governments would take actions as outlined at Tab A to Appendix 4, "Emergency Response Procedures," and in local government RERPs. The Virginia EOC would notify BRH, other State agencies assigned emergency tasks in the COVERERP, and the affected local governments, as appropriate. Each State organization is responsible for activating its personnel in accordance with the organization's procedures and the classification level. The local government EOCs or communications centers would notify local government officials and supporting organizations, and carry out emergency responsibilities and implement procedures in accordance with the local government RERPs. The county RERPs describe procedures for activating emergency personnel. These procedures primarily describe responsibilities for activating emergency personnel, rather than specifically covering the means for activation.

Tab C to Appendix 9, "Emergency Medical Communications," to the COVERERP describes the radio communication capabilities of ambulances, hospitals, and other medical support activities that would respond to a nuclear facility. These include hospital-to-ambulance, hospital-to-hospital, and EOC-to-hospital communication methods. Additionally, VDEM command vehicles are equipped for radio communication on the Virginia medical frequencies. Communications are also available from the Louisa County Sheriff to the University of Virginia Hospital and MCVH. The Virginia EOC can also directly contact the University of Virginia and MCVH by way of radio. The county RERPs describe communication capabilities, consisting of commercial and dedicated telephone lines, as well as local government radios.

In RAI 13.3-5, the staff asked the applicant to describe the specific provisions for communications with contiguous State and local governments within the 10-mile and 50-mile EPZs and with Federal EROs. In addition, the staff asked the applicant to describe the extent to which it would use existing site communications. In its response, the applicant stated that the NAEP describes provisions for communications at the plant site as they currently exist, which include an Insta-Phone hot loop between the licensee, the Virginia EOC, and the risk jurisdiction warning points. In addition, there is a direct automatic ring-down circuit between the

licensee and the Virginia EOC, as well as both private branch exchange and off-premises exchange access to the public switched network. While existing site communications may be used to support a new unit(s) constructed at the ESP site, the applicant stated that it is premature to identify the specific extent to which these capabilities might be used in support of new units at the ESP site, since equivalent or superior means may become available as a result of technological advancements in the future. Thus, without specifying the technology at the ESP stage, the applicant stated that it would ensure that a means, compliant with regulatory requirements, would be provided for communicating with contiguous State and local governments within the 10-mile and 50-mile EPZs, as well as with Federal EROs.

13.3.3.7.2 Regulatory Evaluation

SSAR Section 13.3.2.2 presents the major features of the applicant's emergency plan. The applicant stated that it prepared the information presented in SSAR Section 13.3.2.2 in accordance with 10 CFR 52.17(b)(2)(i) and Appendix E to 10 CFR Part 50, and considered the guidance in Supplement 2. SSAR Section 13.3.2.2.2 states that Supplement 2 presents planning standards and evaluation criteria applicable to a major features emergency plan.

In its review of the application, the staff considered the regulatory requirements in 10 CFR 52.17(b)(2)(i), 10 CFR 52.18, and Sections III, IV.D, and IV.E of Appendix E to 10 CFR Part 50. Under 10 CFR 52.17(b)(2)(i), an applicant for an ESP may propose major features of the emergency plans for NRC review and approval, in consultation with FEMA, in the absence of complete and integrated emergency plans. Under 10 CFR 52.18, after consultation with FEMA, the NRC will determine whether the major features of emergency plans submitted under 10 CFR 52.17(b)(2)(i) are acceptable. RS-002 and Supplement 2 provide guidance concerning the review and evaluation of emergency planning information given in an ESP application. Supplement 2 also provides specific evaluation criteria for major features of emergency plans, including those which apply to major feature F, "Emergency Communications."

Major feature F calls for the applicant to identify communication provisions with State and local governments within the EPZs, with Federal EROs, and with fixed and mobile medical support facilities. The application should also describe provisions for alerting and activating emergency personnel.

13.3.3.7.3 Technical Evaluation

Section II.A of Appendix 3 to the COVERP states that the dedicated hot-loop Insta-Phone system would serve as the primary means of notification and would permit simultaneous notification of the Virginia EOC and the local governments within the 10-mile EPZ. Radio, commercial telephones, and facsimile machines would serve as a backup. Local governments within the 50-mile EPZ would be notified using the Virginia Criminal Information Network with commercial telephone as backup. NAEP Section 7.2.2.4 states that separate dedicated telephone lines with the NRC exist, including the ENS, HPN, RSCL, PMCL, and ERDS. In response to RAI 13.3-5, the applicant stated that existing site communications may be used to support the new units, and equivalent or superior means might also be used if they become available as a result of future technological advancements. Appendix 9 to the COVERP states that the primary means of communications between the Virginia EOC and the Federal EROs would be commercial telephone and that the FEMA Federal national radio system or national warning system would be used as a backup. SSAR Section 13.3.2.2.2.f states that the

ESP site ERO would be alerted for activation by way of multiple communications methods (e.g., plant alarms and/or announcements, pagers, telephones, online messages).

SSAR Section 13.3.2.2.f.5 states that the ESP site can communicate with hospital services, as well as an ambulance, by use of an ultra-low frequency radio or mobile telephone. The ambulance can communicate with the hospital by way of the HEAR system or mobile telephone. In addition, NAEP Section 6.4.3 states that the Department of Emergency Medicine at MCVH has three systems for communicating with incoming ambulances (i.e., the HEAR system, coronary observation radio, and cellular telephone).

Because the above descriptions cover the appropriate EROs and identify primary and backup means of communications, the staff finds that the applicant provided adequate descriptions of provisions for communications with the State and local governments, with Federal EROs, and with fixed and mobile medical support facilities. In addition, the staff finds that the use of the existing site communications for the ESP site is acceptable, to the extent that it would be expanded to incorporate relevant aspects of a proposed new reactor design in a COL or OL application. The staff will determine the adequacy of such incorporation during a COL or OL review. The staff did not consider the availability of equivalent or superior means of communications as a result of future technology advancements to be required for a major features review and, as such, did not review it. A COL or OL applicant will address any such technological advancements, and the staff will determine compliance with the requirements in this area during a COL or OL review.

13.3.3.7.4 Conclusions

As discussed above, the applicant has identified communication provisions with State and local governments within the EPZs, with Federal EROs, and with fixed and mobile medical support facilities. In addition, the applicant has described provisions for alerting and activating emergency personnel. Based on its review, the staff concludes that the proposed major feature F is consistent with the guidelines in RS-002 and Supplement 2. Therefore, this feature is acceptable and meets the requirements of 10 CFR 52.17(b)(2)(i), 10 CFR 52.18, and Sections III, IV.D, and IV.E of Appendix E to 10 CFR Part 50, insofar as it describes the essential elements of advanced planning that have been considered for emergency communications, as set forth above.

13.3.3.8 Public Education and Information (Supplement 2, Major Feature G)

13.3.3.8.1 Technical Information in the Application

SSAR Section 13.3.2.2.2.g states that Dominion would implement an emergency information program for the public and the news media. Dominion would coordinate its public information efforts with the Commonwealth of Virginia and local authorities to ensure that the public is informed by using the best means available.

SSAR Section 13.3.2.2.2.g.1 states that Dominion Resources provides information annually describing the emergency notification process and actions that should be taken in the event of an emergency to the public within the NAPS site 10-mile EPZ. This information includes the following:

- educational information on radiation
- contact points for obtaining additional information
- protective measures (e.g., evacuation routes and relocation centers, sheltering, respiratory protection, radioprotective drugs)
- special needs of the handicapped and the transient population

In addition, SSAR Section 13.3.2.2.g.1 states that Dominion intends to rely on the program that Virginia Power has already established for informing the public in the area surrounding the ESP site. It would coordinate its public information efforts with the Commonwealth of Virginia and local authorities to ensure that the public is informed by using the best means available (e.g., telephone books, utility bill inserts, public postings, and periodic publications, such as brochures and calendars).

SSAR Section 13.3.2.2.g.2 states that Dominion Resources offers an annual program to acquaint the news media with emergency plans, information concerning radiation, and points of contact for release of public information in an emergency. Dominion intends to rely on the Virginia Power program for informing the media in the area surrounding the ESP site.

SSAR Section 13.3.2 states that the emergency plan takes advantage of the emergency planning resources, capabilities, and organization that Virginia Power has already established and currently maintains at the NAPS site. The applicant would extend the existing emergency planning and preparedness activities to include the proposed new unit(s). SSAR Section 13.3.2.2 states that the ESP site is adjacent to a preexisting nuclear facility with existing State and local emergency plans. The SSAR, therefore, relies on and refers to the information contained in these existing plans. No significant differences exist between major features proposed in the application and the major features discussed in existing plans and relied on in the application.

NAEP Section 8.8, "Informing the Public," states that Dominion would distribute public information to ensure coverage within the 10-mile EPZ. The company would also establish a telephone system for addressing rumors, announce the telephone numbers over the EAS, and invite individuals within the 10-mile EPZ to call collect.

Appendix 8, "Public Information," to the COVRERP describes the Commonwealth's coordination with Dominion Resources regarding public information, stating that VDEM would lead the coordination efforts with Dominion on nonemergency public information and education. The State would assist local governments with their radiological information programs, as requested by the emergency services coordinator. These actions would be coordinated with the VDEM regional coordinator. The county RERPs in Louisa, Hanover, Caroline, and Spotsylvania Counties all coordinate with Dominion Resources and VDEM in disseminating such nonemergency information.

Appendix 8 to the COVRERP also indicates that Dominion would offer news media representatives annual briefings on emergency response plans and would provide them with other information regarding nuclear facilities in the Commonwealth. The county RERPs in

Louisa, Hanover, Caroline, and Spotsylvania Counties all mention local coordination in these annual briefings to the news media.

In RAIs 13.3-14(b) and 13.3-14(c), the staff asked the applicant to describe the periodic program in Orange County for informing members of the public about how they will be notified and what actions they should take during an emergency. The staff also asked the applicant to describe its program for periodic, nonemergency briefings for the media. The applicant responded to these RAIs in its submittal dated October 20, 2004. The applicant stated that, on an annual basis, the Commonwealth of Virginia provides the population within the 10-mile EPZ an emergency planning information calendar with instructions to follow in case of an emergency at the power station. The calendar includes information regarding sirens and EAS radio and television stations for the area.

The applicant further stated that the Orange County public information officer or representative would brief assembled news media hourly, on the hour, or as the situation would dictate, either in the Board of Supervisors meeting room or the adjacent hallway media briefing area, using the ingestion pathway map. The public information officer would also monitor radio newscasts and scan local newspapers to determine whether information is accurately disseminated to the public, and take necessary corrective action (see Appendix 2 to the Orange County RERP).

13.3.3.8.2 Regulatory Evaluation

SSAR Section 13.3.2.2 presents the major features of the applicant's emergency plan. The applicant stated that it prepared the information presented in SSAR Section 13.3.2.2 in accordance with 10 CFR 52.17(b)(2)(i) and Appendix E to 10 CFR Part 50, and considered the guidance of Supplement 2. SSAR Section 13.3.2.2.2 states that Supplement 2 presents planning standards and evaluation criteria applicable to a major features emergency plan.

In its review of the application, the staff considered the regulatory requirements in 10 CFR 52.17(b)(2)(i), 10 CFR 52.18, and Sections III, IV.A, IV.D, IV.E, and IV.F of Appendix E to 10 CFR Part 50. Under 10 CFR 52.17(b)(2)(i), an applicant for an ESP may propose major features of the emergency plans for NRC review and approval, in consultation with FEMA, in the absence of complete and integrated emergency plans. Under 10 CFR 52.18, after consultation with FEMA, the NRC will determine whether the major features of emergency plans submitted under 10 CFR 52.17(b)(2)(i) are acceptable. RS-002 and Supplement 2 provide guidance concerning the review and evaluation of emergency planning information given in an ESP application. Supplement 2 also provides specific evaluation criteria for major features of emergency plans, including those which apply to major feature G, "Public Education and Information."

Major feature G calls for the applicant to describe a program to provide information to the public and news media on a periodic basis. The program should address how the applicant would notify the public, including what actions they should take in an emergency, and the applicant's means for acquainting the news media with emergency information.

13.3.3.8.3 Technical Evaluation

As stated in SSAR Section 13.3.2.2.2.g, the NAEP, the COVERERP, and county RERPs, Virginia Power has established a program for providing information to the public and news

media for the NAPS site. Dominion would rely on this program for the area surrounding the ESP site. SSAR Section 13.3.2.2.2.g.1 lists the type of information that Dominion would provide to the public, and SSAR Section 13.3.2.2.2.g.2 describes the type of information that Dominion would provide to the news media. The staff finds that both lists are consistent with NAEP Section 8.8, which applies to the current NAPS site, as well as the COVERP and county RERPs. In addition, Appendix 8 to the COVERP and the county RERPs describe the coordination with Dominion Resources and with each other relating to emergency notification and public information efforts and local coordination by the counties in annual news media briefings.

In RAIs 13.3-14(b) and 13.3-14(c), the staff asked for information regarding the method for providing information to the public in Orange County and the applicant's program for periodic, nonemergency briefings of the media. The staff identified the consideration of this information as Open Item 13.3-2. The staff reviewed the applicant's responses in their submittal dated October 20, 2004, and find them acceptable. Therefore, Open Item 13.3-2 is resolved.

The staff finds that the EROs have described an adequate program to provide a coordinated dissemination of information to the public on a periodic basis, including how they will be notified and what their actions should be in an emergency. In addition, the staff finds that the organizations have an adequate program for acquainting the news media on a periodic basis with emergency plans, information concerning radiation, and points of contact for the release of public information in an emergency.

13.3.3.8.4 Conclusions

As discussed above, the applicant has described a program to provide information to the public and news media on a periodic basis and which addresses public notification and emergency actions. Based on its review, the staff concludes that the proposed major feature G is consistent with the guidelines in RS-002 and Supplement 2. Therefore, this feature is acceptable and meets the requirements of 10 CFR 52.17(b)(2)(i), 10 CFR 52.18, and Sections III, IV.B, IV.D, IV.E, and IV.F of Appendix E to 10 CFR Part 50, insofar as it describes the essential elements of advanced planning that have been considered for public education and information, as set forth above.

13.3.3.9 Emergency Facilities and Equipment (Supplement 2, Major Feature H)

13.3.3.9.1 Technical Information in the Application

SSAR Section 13.3.2.2.2.h.1 states that Dominion would make provisions for a technical support center (TSC) located near the control room. Personnel reporting to the TSC would provide plant management and technical support to the control room staff during emergency conditions. The TSC would have technical and data displays and plant records available to assist in the detailed analysis and diagnosis of abnormal plant conditions. It would serve as the primary onsite communications center for the plant during an emergency.

SSAR Section 13.3.2.2.2.h.2 states that Dominion would provide for an operational support center (OSC) assembly area, separate from the control room and the TSC. SSAR Section 13.3.2.2.2.h.3 states that Dominion would provide for an EOF to manage the overall licensee emergency response, including coordination with Federal, State, and risk jurisdiction

officials, organization of radiological and environmental assessments, and determination of recommended public protective actions. The EOF would have technical and data displays and plant records available to assist in the diagnosis of plant conditions. The EOF would serve as the primary offsite communications center for the plant during an emergency.

SSAR Section 13.3.2.2 states that the ESP site is adjacent to a preexisting nuclear facility with existing State and local emergency plans. The SSAR, therefore, relies on and refers to the information contained in these existing plans. No significant differences exist between the major features proposed in the application and the major features discussed in existing plans and relied on in the application. SSAR Section 13.3.2.2.2.h.4 states that the State and risk jurisdictions have established EOCs for use in directing and controlling emergency response functions. COVERP Section II.C describes the establishment of the State EOC and its functions, noting that the State would coordinate the offsite emergency operations from the Virginia EOC (staffed 24 hours a day, 7 days a week) and respective local government EOCs. The county RERPs describe the establishment, location, and function of the local EOCs.

SSAR Sections 13.3.2.2.2.h.1 and 13.3.2.2.2.h.2 provide brief, general statements from the criteria presented in NUREG-0696, "Functional Criteria for Emergency Response Facilities—Final Report," issued February 1981, for the TSC, OSC, and EOF, but do not give specific facility- or equipment-related information.

In RAI 13.3-8, the staff asked the applicant to discuss the extent to which it intended the application to address evaluation criteria V.H.1 and V.H.2 of Supplement 2 for the TSC, OSC, and EOF, including the criteria of NUREG-0696. In addition, the staff asked the applicant to state whether Dominion intends to use the existing TSC, OSC, and EOF, which support North Anna Units 1 and 2, for the ESP site. If so, the applicant should provide information consistent with evaluation criteria V.H.1 and V.H.2 of Supplement 2. In its response, the applicant stated that the COL or CP applicant would make provisions for emergency facilities and equipment for the TSC, OSC, and EOF that would satisfy the functions described in SSAR Sections 13.3.2.2.2.h.1 through 13.3.2.2.2.h.2. The applicant noted that additional information addressing the NUREG-0696 criteria is not necessary or appropriate at the time of the ESP application and that a COL or CP application would include a description of the TSC and descriptions of the conceptual designs for an OSC and EOF. Since the TSC, OSC, and EOF details would differ based on the reactor design selected at the COL or CP stage, the applicant has not yet decided whether to use the existing facilities to support the new unit(s).

Subsequently, in its submittal dated March 3, 2005, the applicant withdrew its request that major feature H be evaluated as part of the North Anna ESP application.

13.3.3.9.2 Regulatory Evaluation

SSAR Section 13.3.2.2 presents the major features of the applicant's emergency plan. The applicant stated that it prepared the information presented in SSAR Section 13.3.2.2 in accordance with 10 CFR 52.17(b)(2)(i) and Appendix E to 10 CFR Part 50, and considered the guidance in Supplement 2. SSAR Section 13.3.2.2.2 states that Supplement 2 presents planning standards and evaluation criteria applicable to a major features emergency plan.

In its review of the application, the staff considered the regulatory requirements in 10 CFR 52.17(b)(2)(i), 10 CFR 52.18, and Sections III, IV.B, and IV.E of Appendix E to 10 CFR Part 50.

Under 10 CFR 52.17(b)(2)(i), an applicant for an ESP may propose major features of the emergency plans for NRC review and approval, in consultation with FEMA, in the absence of complete and integrated emergency plans. Under 10 CFR 52.18, after consultation with FEMA, the NRC will determine whether the major features of emergency plans submitted under 10 CFR 52.17(b)(2)(i) are acceptable. RS-002 and Supplement 2 provide guidance concerning the review and evaluation of emergency planning information given in an ESP application. Supplement 2 also provides specific evaluation criteria for major features of emergency plans, including those which are applicable to major feature H, "Emergency Facilities and Equipment."

Major feature H calls for the applicant to describe a TSC, onsite OSC, and EOF, in accordance with the criteria of NUREG-0696. The following are the general guidance criteria from NUREG-0696 for these facilities:

- The TSC is an onsite facility located close to the control room that shall provide plant management and technical support to the reactor operating personnel located in the control room during emergency conditions. It shall have technical data displays and plant records available to assist in the detailed analysis and diagnosis of abnormal plant conditions and any significant release of radioactivity to the environment. The TSC shall be the primary communications center for the plant during an emergency.
- The OSC is an onsite assembly area separate from the control room and the TSC where licensee operations support personnel shall report in an emergency. There shall be direct communications between the OSC and the control room, and between the OSC and the TSC, so that the personnel reporting to the OSC can be assigned to duties in support of emergency operations.
- The EOF is a near-site support facility for the management of overall licensee emergency response (including coordination with Federal, State, and local officials), coordination of radiological and environmental assessments, and determination of recommended public protective actions. The EOF shall have appropriate technical data displays and plant records to assist in the diagnosis of plant conditions to evaluate the potential or actual release of radioactive materials to the environment.

In addition, major feature H calls for the application to describe an EOC for each offsite organization, for use in directing and controlling response functions.

13.3.3.9.3 Technical Evaluation

In SSAR Sections 13.3.2.2.2.h.1 through 13.3.2.2.2.h.2, the applicant offered a slightly revised statement of the general guidance criteria from NUREG-0696 for the TSC, OSC and EOF, when compared to that provided above. In order for the NRC staff to determine whether major feature H is acceptable, the applicant must address the adequacy of the facilities and related equipment in support of emergency response and address, with specificity, facility and equipment features, such as location, size, structure, function, habitability, communications, staffing and training, radiological monitoring, instrumentation, data system equipment, power supplies, technical data and data systems, and record availability and management. The staff identified the consideration of this information as Open Item 13.3-3. On March 3, 2005, the applicant withdrew its request that major feature H be evaluated as part of the North Anna ESP application. Based on this withdrawal, Open Item 13.3-3 is resolved.

13.3.3.9.4 Conclusions

As discussed above, the applicant has withdrawn its request that major feature H be evaluated as part of the North Anna ESP application. Based on this withdrawal, as set forth above, the staff reached no conclusion regarding the acceptability of major feature H.

13.3.3.10 Accident Assessment (Supplement 2, Major Feature I)

13.3.3.10.1 Technical Information in the Application

SSAR Section 13.3.2.2.2.i.1 states that the existing NAPS meteorological monitoring system has the capability to collect data for making near real-time predictions of atmospheric effluent transport and diffusion. The data would be accessible in the new unit's control room, TSC, and EOF. The applicant would also make suitable meteorological information available to the State, as described in SSAR Section 13.3.2.2.2.e. SSAR Section 13.3.2.2.2.f describes communications with the State, risk jurisdictions, and Federal Government EROs.

The National Oceanic and Atmospheric Administration (NOAA) is the primary agency within the U.S. Department of Commerce responsible for providing assistance to Federal, State, and local organizations in responding to a radiological emergency under the provisions of the FRERP, as described in SSAR Section 13.3.2.2.2.c. Within NOAA, the National Weather Service is the primary source of weather data, forecasts, and warnings for the United States. Section 13.3.3.4 of this SER discusses the FRERP.

NAEP Section 7.3.3, "Meteorological Monitoring," states that the station's meteorological monitoring system provides the capability for predicting atmospheric effluent transport and diffusion. The system consists of a primary and a backup tower. Dominion Resources chose the tower locations to represent regional conditions. Instruments located at these towers provide data to the meteorological information and dose assessment system (MIDAS) via the plant computer system, which is transmitted to both the NAPS control room and Dominion Resource's weather center at Innsbrook, Virginia. NAEP Table 7.2, "Meteorological Monitoring System Parameters," lists the parameters measured, and all meteorological data are available by means of a dial-up link at meteorological operations in Richmond, Virginia.

SSAR Section 13.3.2.2.2.i.2 states that Dominion would use field monitoring to obtain offsite radiological data within the 10-mile EPZ, and Dominion would coordinate field monitoring activities from the EOF with VDH, under the provisions of the COVERP. SSAR Section 13.3.2.2.2.i.3 states that Dominion and the State would rely on DOE for airborne radioactive plume tracking under the provisions of the FRERP, as described in SSAR Section 13.3.2.2.2.c.

NAEP Section 7.3.2, "Radiological Monitoring," also addresses the capabilities and resources for field monitoring within the 10-mile EPZ. It states that Dominion would use both fixed and portable radiation monitoring equipment to perform dose assessments. It would use air samplers and thermoluminescent dosimeters (TLDs) to obtain offsite data. In addition, the State has TLD monitoring points located around the NAPS site, which serve to verify data. NAEP Figures 7.1 and 7.2 identify dosimetry and air sampler locations within the 10-mile EPZ.

NAEP emergency plan implementing procedure (EPIP)-4.01, "Radiological Assessment Director Controlling Procedure," provides guidance for conducting dose assessment, source term determination, atmospheric diffusion factor determination, monitoring team activities, personnel monitoring and decontamination, monitoring of onsite facilities, evacuation, respiratory protection, sampling and sample analysis, and use of the MIDAS computer model. The NAPS maintains fixed laboratory equipment to support sampling analysis and monitoring, including reading TLDs. The equipment includes multichannel analyzers, proportional counters, a tritium analyzer, and whole body counters.

SSAR Section 13.3.2.2 states that the ESP site is adjacent to a preexisting nuclear facility with existing State and local emergency plans. The SSAR, therefore, relies on and refers to the information contained in these existing plans. No significant differences exist between major features proposed in the application and the major features discussed in existing plans and relied on in the application.

The State response organization is based on normal government structures and channels of communications. The State coordinates overall response, and BRH provides technical advice and assistance on radiological accident assessment and radiological fielding monitoring. Upon declaration of an alert (or higher) emergency class, VDEM would notify VDH, and BRH would implement its response procedures in accordance with the COVERERP. Appendix 5, "Accident Assessment," to the COVERERP states that an RERT, composed of personnel from State agencies and supplemented by personnel from the nuclear facility and Federal agencies, would perform State radiological assessment activities. The RERT would operate from the State EOC. Depending on the release parameters, the State does not anticipate full Federal participation until after the emergency phase, at which time it would rely on DOE to help develop information on the deposition of radioactive materials.

State field teams would coordinate their activities with utility and county teams and would obtain area radiation dose rates, as well as air and environmental samples. The county RERPs describe local responsibilities during a radiological emergency at NAPS. These include providing personnel and equipment, as needed, to supplement BRH field monitoring. The State has a mobile radiological laboratory to perform rapid sample assessment. The Division of Consolidated Laboratories will make available the services of additional radiological laboratories, and the State has access to Federal radiological field monitoring resources under the provisions of the FRERP. SSAR Section 13.3.2.2.c discusses the FRERP, with regard to locating and tracking the airborne radioactive plume. Section 13.3.3.4 of this SER discusses additional accident assessment capabilities and resources. Sections 13.3.2, 13.3.3.2, 13.3.3.4, and 13.3.3.13 of this SER describe contacts and arrangements in support of accident assessment.

In RAI 13.3-14(d), the staff asked the applicant for additional information concerning the assumptions in the application and assumptions in the COVERERP regarding reliance on DOE for airborne radioactive plume tracking. In its response dated October 20, 2004, the applicant stated the following:

Dominion and the Commonwealth of Virginia rely on the Department of Energy for airborne radioactive plume tracking under provisions of the FRERP. Under provisions of the Federal Radiological Emergency Response Plan, DOE may respond to a state or LFA [Lead Federal Agency] request for assistance by

dispatching a Radiological Assistance Program (RAP) team. The DOE Regional Coordinating Office with responsibility for the geographic area where the Dominion ESP site is situated is the Oak Ridge Operations Office in Oak Ridge, Tennessee. The DOE Radiological Assistance Plan, Region 2, includes the states of Arkansas, Louisiana, Mississippi, Missouri, Tennessee, and West Virginia; the Commonwealths of Kentucky, Virginia and Puerto Rico; and the U.S. Virgin Islands. If the situation requires more assistance than a RAP team can provide, DOE will alert or activate additional resources. These resources may include the establishment of a Federal Radiological Monitoring and Assessment Center (FRMAC) to be used as an on-scene coordination center for federal radiological assessment activities. The FRMAC is charged with defining and monitoring the radiological impact of a nuclear or radiological release. Because the effects of radiological contamination may last beyond an immediate emergency, FRMAC serves as a coordination point for radiological monitoring, assessment, evaluation, and reporting activities for the area surrounding a radiological incident, including decontamination, recovery, and long-term environmental monitoring. The FRMAC provides for the coordinated management of federal technical response activities related to a radiological emergency. It has three primary goals:

- Assisting the Commonwealth of Virginia and LFA with personnel, equipment, and technical resources, as needed.
- Collecting offsite environmental radiological data.
- Providing to the involved Commonwealth of Virginia agencies and local and federal agencies collected offsite environmental radiological data and related assessments.

A Federal Radiological Monitoring Assessment Center advance party can be expected at the site within 6 to 14 hours following the order to deploy, depending on the availability of airports near the Dominion ESP site. Richmond International Airport (RIC) is a major commercial facility and is within about an 85-minute drive from the Dominion ESP site. Smaller airports located within about an hour of the site may also be used.

13.3.3.10.2 Regulatory Evaluation

SSAR Section 13.3.2.2 presents the major features of the applicant's emergency plan. The applicant stated that it prepared the information presented in SSAR Section 13.3.2.2 in accordance with 10 CFR 52.17(b)(2)(i) and Appendix E to 10 CFR Part 50, and considered the guidance of Supplement 2. SSAR Section 13.3.2.2.2 states that Supplement 2 presents planning standards and evaluation criteria applicable to a major features emergency plan.

In its review of the application, the staff considered the regulatory requirements in 10 CFR 52.17(b)(2)(i), 10 CFR 52.18, and Sections III and IV.B of Appendix E to 10 CFR Part 50. Under 10 CFR 52.17(b)(2)(i), an applicant for an ESP may propose major features of the emergency plans for NRC review and approval, in consultation with FEMA, in the absence of complete and integrated emergency plans. Under 10 CFR 52.18, after consultation with FEMA,

the NRC will determine whether the major features of emergency plans submitted under 10 CFR 52.17(b)(2)(i) are acceptable. RS-002 and Supplement 2 provide guidance concerning the review and evaluation of emergency planning information given in an ESP application. Supplement 2 also provides specific evaluation criteria for major features of emergency plans, including those which apply to major feature I, "Accident Assessment."

Major feature I calls for the applicant to describe the methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition. The applicant should also describe the capability and resources associated with acquiring meteorological information and performing field monitoring, and contacts and arrangements with offsite organizations (including Federal and State resources).

13.3.3.10.3 Technical Evaluation

SSAR Section 13.3.2.2.2.i.1 states that the existing NAPS meteorological monitoring system has the capability to collect data for making near real-time predictions of atmospheric effluent transport and diffusion. The data would be accessible in the new unit's control room, TSC, and EOF. The applicant would make suitable meteorological information available to the State. In addition, NOAA provides assistance to Federal, State, and local organizations in responding to a radiological emergency under the provisions of the FRERP. The staff finds that this information adequately describes the contacts and arrangements for acquiring and evaluating meteorological information, including making the data available to the State.

SSAR Section 13.3.2.2.2.i.2 states that Dominion would use field monitoring to obtain offsite radiological data, and it would coordinate field monitoring activities from the EOF with VDH, under the provisions of the COVRERP. SSAR Section 13.3.2.2.2.i.3 states that Dominion and the State would rely on DOE for airborne radioactive plume tracking under the provisions of the FRERP. NAEP Section 7.3.2 states that Dominion would use both fixed and portable radiation monitoring equipment to perform dose assessment and would use air samplers and TLDs to obtain offsite data. The equipment includes multichannel analyzers, proportional counters, a tritium analyzer, and whole body counters.

The State has TLD monitoring points located around the NAPS site, which would serve to verify data from the site, and a mobile radiological laboratory to perform rapid sample assessment. The State would coordinate overall response, and BRH would provide technical advice and assistance on radiological accident assessment and radiological field monitoring. State field teams would coordinate their activities with utility and county teams and would obtain area radiation dose rates, as well as air and environmental samples. County responsibilities would include providing personnel and equipment, as needed, to supplement BRH field monitoring. The State also has access to Federal radiological field monitoring resources under the provisions of the FRERP.

In RAI 13.3-14(d), the staff asked the applicant for information on the assumptions in the application and in the COVRERP regarding reliance on DOE for airborne radioactive plume tracking. The staff identified the consideration of this information as Open Item 13.3-4. The staff reviewed the applicant's response in their submittal dated October 20, 2004, and finds it acceptable. Therefore, Open Item 13.3-4 is resolved. The staff finds that the applicant has adequately described contacts and arrangements with responsible agencies and organizations in support of accident assessment activities.

13.3.3.10.4 Conclusions

As discussed above, the applicant has described adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite radiological consequences of a radiological emergency condition at the ESP site, including associated contacts and arrangements. Based on its review, the staff concludes that the proposed major feature I is consistent with the guidelines in RS-002 and Supplement 2. Therefore, this feature is acceptable and meets the requirements of 10 CFR 52.17(b)(2)(i), 10 CFR 52.18, and Sections III, IV.A, IV.B, IV.C, IV.D, and IV.E of Appendix E to 10 CFR Part 50, insofar as it describes the essential elements of advanced planning that have been considered for accident assessment, as set forth above.

13.3.3.11 *Protective Response (Supplement 2, Major Feature J)*

13.3.3.11.1 Technical Information in the Application

SSAR Section 13.3.2.2.2.j.1 states that the existing emergency assembly areas that support NAPS would also support a new reactor(s) constructed on the ESP site. If evacuation of onsite individuals is necessary, Dominion would direct evacuees to either the primary or secondary remote assembly area (RAA), depending on specific radiological and environmental conditions. SSAR Figure 13.3-4 depicts the onsite evacuation routes, RAAs, and State EACs. Evacuees would use personal vehicles for transportation. Dominion would survey evacuees for contamination following events involving a release and would decontaminate them, if necessary, before releasing them from the RAA.

In RAI 13.3-6, the staff asked the applicant to clarify the availability of transportation to emergency assembly areas for onsite individuals who do not have their personal vehicle available onsite. In its response, the applicant stated that those individuals would travel as passengers in personal vehicles driven by others, which is the approach currently implemented for the existing NAPS site.

NAEP Section 6.3.1, "Offsite Criteria for the 10 Mile Emergency Planning Zone," states that Dominion Resources has established evacuation zones, routes, and relocation centers in the event that an evacuation is recommended and publishes this information in brochures distributed by the State. NAEP Section 6.3.2, "Onsite Criteria for the Exclusion Area," states that in the event of an onsite evacuation, radiation monitoring teams would be dispatched to the appropriate RAA. Evacuees using personal vehicles would proceed to either the primary or secondary RAA. NAEP Figure 6.2, which is identical to SSAR Figure 13.3-4, identifies the RAAs.

SSAR Section 13.3.2.2.2.j.2 states that the senior Dominion representative would recommend initial offsite protective actions to the State within 15 min of declaring a general emergency, based on plant conditions. The State and risk jurisdictions would notify the public and implement the appropriate protective measures. Followup protective action recommendations (PARs) from the NAPS site would be based on current meteorological data and dose projections. The applicant stated that this guidance is based on NUREG-0654/FEMA-REP-1, Supplement 3, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants—Criteria for Protective Action Recommendations for Severe Accidents—Draft Report for Interim Use and Comment," issued

July 1996, and U.S. Environmental Protection Agency (EPA) 400-R-92-001, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents," issued May 1992.

NAEP Section 6.3, "Protective Actions," further states that, for the existing North Anna units, specific PARs are tied to plant and meteorological conditions. An EPIP, specifically designed to meet the 15-min PAR to the State, includes these recommendations. The initial PAR for any event classified as a general emergency would be to evacuate in all directions out to 5 miles. Dominion would declare a site area emergency when offsite doses are projected to exceed 0.001 Sv (0.1 rem) total effective dose equivalent (TEDE), or 0.005 Sv (0.5 rem) thyroid committed dose equivalent (CDE). A general emergency would be declared when offsite protective action guidelines (PAGs) of 0.01 Sv (1.0 rem) TEDE and/or 0.05 Sv (5.0 rem) thyroid CDE are projected to be exceeded because of a direct radiation or inhalation hazard, or when nonradiological conditions exceed general emergency EALs.

In RAI 13.3-7, the staff asked the applicant to describe the mechanism for recommending protective actions to the appropriate State and local authorities, including how EALs would be used to determine PARs (e.g., sheltering, evacuation, use of KI), consistent with EPA 400-R-92-001. In addition, the staff asked the applicant to describe how it would give those recommendations to the appropriate State and local authorities, and how it would give changes to, or termination of, PARs to State and local authorities. In its response, the applicant stated that, in the event of a radiological emergency, the plant staff would analyze conditions and classify the event using the EALs developed pursuant to Appendix E to 10 CFR Part 50. In most cases, the initial PAR would be made without the benefit of dose assessment results (i.e., based on plant conditions). Evacuation decisions would be based on dose projections or offsite monitoring results exceeding evacuation dose thresholds of 0.01 Sv (1 rem) TEDE or 0.05 Sv (5 rem) thyroid CDE. A recommendation by Dominion for the State to issue KI to the general public would be based on reaching a projected dose of 0.05 Sv (5 rem) thyroid CDE at or beyond the NAPS site boundary. PAR revisions would consider actions taken in response to previous PARs. Dominion would formally communicate initial PARs and any changes directly to the State EOC using a dedicated automatic ring-down circuit, with a commercial telephone as backup. The State would make a protective action decision and notify the affected populace, as described in SSAR Section 13.3.2.2.2.e.3. Dominion would discuss termination of PARs with the State before issuance to ensure that PAR termination would not adversely affect offsite response actions.

In its response to RAI 13.3-7, the applicant further stated that 10 CFR 50.47(b)(10), Supplement 3 to NUREG-0654/FEMA REP-1, and EPA 400-R-92-001 contain the current Federal guidance relating to PARs. However, the guidance in Supplement 3 may change. As such, the applicant stated that it responded to this RAI with the understanding that, in the context of the North Anna ESP application, Federal guidance may change before it would become applicable.

SSAR Section 13.3.2.2.2.j.3 states that the ETE applies to the ESP site, and that ETEs based on different affected population areas and weather conditions range from 85 to 105 min. SSAR Section 13.3.2.2.2.j.4 states that the ETE includes maps showing the site and the 10-mile EPZ, transportation networks and evacuation routes, topographical features, political boundaries, and the PAZs. In addition, population information is presented in 2-mile, 5-mile, and 10-mile ring and 16-sector format, as well as by PAZ. Section 13.3.3.6 of this SER discusses the means for

notifying the resident and transient population, while Section 13.3.1 of this SER provides additional information regarding the ETE.

SSAR Section 13.3.2.2 states that the ESP site is adjacent to a preexisting nuclear facility with existing State and local emergency plans. The SSAR, therefore, relies on and refers to the information contained in these existing plans. No significant differences exist between major features proposed in the application and the major features discussed in existing plans and relied on in the application.

For the NAPS site, NAEP Section 6.3.1, "Offsite Criteria for the 10 Mile Emergency Planning Zone (EPZ)," states that State and local officials are responsible for warning the public within the 10-mile EPZ and that the State Department of Police would assist them. The early warning system sirens serve as the primary method for warning the public. Other warning methods may include telephone, television and radio EAS stations, public address systems, patrol car bullhorns, and personal contact. Either the State or county would release written preplanned messages to the media, which would provide protective action instructions. The COVERP states that the local governments have the responsibility to educate their citizens on possible radiological hazards, emergency notification, evacuation routes, assembly points, and other protective measures.

COVERP Section VII.D.1.a states that the State and neighboring local governments would provide onsite assistance as requested and as mutually agreed to with the facility operator. Similarly, the Louisa County RERP states that the county would also provide required, mutually agreed-upon assistance.

The COVERP and county RERPs contain maps that show the EPZ, PAZs (where evacuation or sheltering would be implemented), and evacuation routes. They also contain tables that show the population distribution in the counties and in the PAZs. The plans also list the EACs (i.e., relocation centers). Each county RERP contains information concerning the transportation of either transportation-dependent or special needs populations in their counties. State assets would be available as backup, if needed. The only institutionalized populations are those in schools in Louisa and Spotsylvania Counties. Public school buses would provide transportation from the affected school(s) to the designated EACs. In addition, the counties would use school buses to evacuate other segments of the population without access to private transportation.

For the roadways, the local sheriffs' departments are responsible for manning the traffic and access control points during and following an accident. Both the COVERP and county RERPs list these points. Private vehicles would be the primary means of transportation during an evacuation. School buses, law enforcement vehicles, and ambulances would supplement these vehicles, as needed. The county RERPs for Caroline, Hanover, Louisa, and Spotsylvania Counties provide the means for dealing with potential impediments to using evacuation routes.

The State and local plans list the EACs, which are at least 15 miles from the ESP site. Appendix 8, "Evacuation Assembly Center Procedures," to the county RERPs provides the means for registering and monitoring evacuees at the EACs. The COVERP and county RERPs designate evacuation as the primary protective action. Tab A of Appendix 6 to the COVERP considers other factors, not addressed in the county RERPs, such as shelter availability, meteorological conditions, ETEs and risks, projected and actual doses, and plant

conditions. Except for Orange County, the local plans list sheltering as an option but do not provide guidance for when sheltering should be considered.

The COVERP and county RERPs contain information concerning the use of KI by emergency workers. The COVERP states that the State health director is responsible for authorizing emergency workers to use KI. Appendix 6 to the county RERPs provides details for implementing the KI decision for emergency workers. The COVERP also states that individuals responsible for the care of institutionalized persons would be responsible for their protection, including the use of KI. The county RERPs do not consider the use of KI by institutionalized persons, since evacuation and sheltering actions would make KI use unnecessary.

In RAIs 13.3-14(e), (f), (g), and (h), the staff asked the applicant for additional information concerning use of the Patrick Henry High School, agreements for assistance from offsite agencies, description of measures for dealing with potential impediments to use of evacuation routes, and when sheltering should be considered. The applicant responded to these RAIs in its submittal dated October 20, 2004. The applicant stated that Patrick Henry High School is the secondary EAC for Hanover County and a primary host school for Louisa County school children. In the event that North Anna is required to send station evacuees to the school, the licensee would request permission in advance, and Dominion would provide resources to assist with the monitoring and decontamination of site evacuees.

The applicant further stated that the existing letters of agreement, which address evacuation assistance, contain the agreements for assistance from offsite agencies. Law enforcement agencies would provide traffic control on Commonwealth roads. Both VSP and Louisa County Sheriff's Office routinely train and exercise with Dominion emergency planners. In Orange County, no routes exist that would experience any significant congestion during evacuation, and appropriate actions have been identified for adverse weather conditions. In regard to sheltering, a protective action decision would be made at the State EOC after local recommendations are considered, and a conference call would be held to include all jurisdictions in the PARs.

In RAI 13.3-15, the staff asked the applicant for additional information concerning the ETE regarding road capacities and travel times, traffic control, worst-case scenario, persons without vehicles, schools, working people, evacuation confirmation, projected demography, and computer modeling of the population. In addition, the staff asked the applicant for figures or maps that showed various characteristics of the area surrounding the ESP site. In its response to this RAI, dated October 20, 2004, the applicant provided the requested figures or maps and stated, in part, the following:

- The ETEs do not explicitly depend on the implementation of the emergency response traffic control procedures outlined in the counties' RERPs. It is expected that ETEs would not increase because of their implementation.
- The ETE study required no explicit assumptions regarding the timing or implementation of traffic control measures by local EROs. Local emergency management agencies use ETEs to develop traffic control and traffic management plans to facilitate the evacuation process.

- Traffic controls in a network can limit user equilibrium if those traffic controls force some vehicles to take routes with longer travel times. The purpose of the traffic control points described in the counties RERPs is not to force vehicles to take a particular route with a longer travel time but to maintain reasonable traffic flow. Drivers would be generally free to choose their own route based on available routes.
- The ETE study was intended to consider general evacuation scenarios resulting from a radiological event at NAPS. The ETEs are intended to be based on general bad weather conditions. Bad weather in the area around NAPS was assumed to be predominately related to snow and ice. To accommodate the impact of bad weather on the ETEs, the speed limits were reduced by 40 percent. This effectively reduced the road capacities by about 25 percent.
- In regard to the assumption of a car occupancy factor of 2.5, the average household size for the five counties surrounding the NAPS is 2.56. It is assumed that families would evacuate together in most situations. Additionally, most planners estimate that to evacuate, each household would take an average of 1.3 to 1.5 vehicles (or about 2 to 2.5 people per vehicle).
- The nuclear emergency information calendars distributed in each of the counties inform the public to assist friends and neighbors without transportation. In addition, local government vehicles would transport persons without their own means of evacuation; members of the immediate family or friends (if possible) would evacuate nonambulatory persons; and those requiring transportation would be identified (before or at the time of the emergency), and transportation would be provided. It is assumed that neighbors or relatives would evacuate the majority of the population needing transportation.
- Although county RERPs identify bus routing for pickup of nonauto-owning populations, they also encourage any nonambulatory persons to evacuate with members of the immediate family or friends, if possible. Similarly, the nuclear emergency information calendars encourage people without transportation to make plans to ride with a neighbor.
- The evacuation of school children is implicitly represented in the composite traffic loading curve. The superintendent of schools would provide buses and other vehicles with drivers for assisting in an evacuation of the public and school students. If school children had not been returned to their homes before an evacuation order, they would be taken to an EAC under adult supervision.
- Schools can typically be expected to respond significantly faster than the general population. As a result of routine fire drills and other emergency drills performed at schools, response times are typically much better for school populations than for general populations. Schools have demonstrated the ability to load buses and start evacuation within 10–20 min following a warning and directions to do so from local emergency management.
- The time needed to confirm evacuation depends on the method of confirmation employed. County RERPs and the nuclear emergency information calendar provide some information on conducting such confirmation, such as placing the "We Have Been

Notified" card (from the back of the calendar) in a window or door facing the street, or tying a towel to a door or mailbox.

- The composite traffic loading curve used for the ETE analysis is based on the data collected during evacuations executed in response to large-scale chemical spills. This curve explicitly incorporates the time required for communication of the warning to the public and the time required for an individual to respond to the warning.
- The ETE analysis used the Evacuation Simulation Model, the core component of the Oak Ridge Evacuation Modeling System, to establish the ETEs. The composite traffic loading curve used for the ETE incorporates the time required for communication of the warning to the public and the time required for an individual to respond to the warning once received. The mobilization time distribution is based on data from actual emergency evacuations and, hence, does not implicitly account for most of the common activities performed by individuals in preparation for evacuation.
- The underlying assumption regarding the applicability of the Rogers' mobilization curves in the ETE study is that public perception of radiological emergencies differs from the actual characteristic of such an event. The alarm that would be associated with social response in a radiological emergency makes the use of Rogers' mobilization curves prudent for the ETE study.

13.3.3.11.2 Regulatory Evaluation

SSAR Section 13.3.2.2 presents the major features of the applicant's emergency plan. The applicant stated that it prepared the information presented in SSAR Section 13.3.2.2 in accordance with 10 CFR 52.17(b)(2)(i) and Appendix E to 10 CFR Part 50, and considered the guidance in Supplement 2. SSAR Section 13.3.2.2.2 states that Supplement 2 presents planning standards and evaluation criteria applicable to a major features emergency plan.

In its review of the application, the staff considered the regulatory requirements in 10 CFR 52.17(b)(2)(i), 10 CFR 52.18, and Sections III, IV.B, and IV.D of Appendix E to 10 CFR Part 50. Under 10 CFR 52.17(b)(2)(i), an applicant for an ESP may propose major features of the emergency plans for NRC review and approval, in consultation with FEMA, in the absence of complete and integrated emergency plans. Under 10 CFR 52.18, after consultation with FEMA, the NRC will determine whether the major features of emergency plans submitted under 10 CFR 52.17(b)(2)(i) are acceptable. RS-002 and Supplement 2 provide guidance concerning the review and evaluation of emergency planning information given in an ESP application. Supplement 2 also provides specific evaluation criteria for major features of emergency plans, including those which apply to major feature J, "Protective Response."

Major feature J calls for the applicant to describe protective actions for the 10-mile EPZ for the public and emergency workers, including evacuation routes, transportation, and handling evacuees. The application should identify guidelines for the choice of protective actions, consistent with Federal guidance, as well as the bases and mechanisms for recommending protective actions to State and local authorities. The application should describe each organization's concept for implementing protective actions and describe contacts and arrangements with offsite agencies. In addition, the applicant should prepare an ETE for the 10-mile EPZ.

13.3.3.11.3 Technical Evaluation

In SSAR Section 13.3.2.2.2.j.1, the applicant stated that onsite individuals would be evacuated, using personal vehicles for transportation, to either the primary or secondary RAA, depending on specific radiological and environmental conditions. SSAR Figure 13.3-4 shows the separate locations of the RAAs and State EAC, and the associated evacuation routes. The RAAs are located in separate directions from the ESP site, and the State EAC provides a third location. The staff finds that the RAAs and State EAC are suitable because they provide adequate alternative offsite evacuation locations in the event of inclement weather, high traffic density, and specific radiological conditions.

The staff finds that SSAR Section 13.3.2.2.2.j.2 adequately describes a mechanism for recommending protective actions to the appropriate State and local authorities. The application states that the senior Dominion representative would be responsible for making initial and followup PARs and that EPA 400-R-92-001 would serve as the basis for such recommendations. The staff did not consider the possibility of a change to the Federal guidance relating to PARs germane to its review of the SSAR. Rather, the staff applied current requirements. A COL or OL applicant should address any such changes, and the staff will determine compliance with the requirements in this area during a COL or OL review.

The staff found that the EACs are at least 15 mi from the ESP site and that the registration and monitoring of evacuees would be conducted in accordance with the EAC procedure, contained in the county RERPs. In addition, the staff found that the COVERP and county RERPs designate evacuation as the primary protective action and that Tab A of Appendix 6 to the COVERP considers other factors, such as shelter availability, meteorological conditions, ETEs and risks, projected and actual doses, and plant conditions.

The COVERP and county RERPs state that the State and local governments would provide onsite assistance, as requested and as mutually agreed to with NAPS. The revised letters of agreement, discussed in Section 13.3.2 of this SER, address such mutually agreed-upon assistance.

The staff finds that the application, the NAEP, the COVERP, and county RERPs provide maps (or lists) that adequately illustrate population distribution around the site, evacuation areas, evacuation routes, shelter areas, and relocation centers in host areas. The staff finds that the proposed means for notifying all segments of the resident and transient population are adequate because the primary method for warning the public is through the use of the early warning system sirens, with additional notification capabilities through the use of telephones, television and radio EAS stations, public address systems, patrol car bullhorns, and personal contact. The warnings would consist of preplanned messages, which provide specific protective action instructions. Individuals responsible for the care of institutionalized persons would also be responsible for their protection, including sheltering, evacuation, and the use of KI. The State health director would authorize the use of KI by emergency workers and institutionalized persons.

In RAIs 13.3-14(e)-(h), the staff asked for information concerning the use of Patrick Henry High School, agreements for assistance from offsite agencies, measures for dealing with potential impediments to use of evacuation routes, and consideration of sheltering. The staff identified the consideration of this information as Open Item 13.3-5. The staff reviewed the applicant's

responses in their submittal dated October 20, 2004, and find them acceptable. Therefore, Open Item 13.3-5 is resolved.

In RAI 13.3-15, the staff asked for additional information regarding issues relating to the ETE. The staff identified consideration of this information as Open Item 13.3-6. The staff reviewed the applicant's response in their submittal dated March 3, 2005, and finds it acceptable. Therefore, Open Item 13.3-6 is resolved.

The staff finds that the applicant has adequately described a range of protective actions for the plume exposure pathway EPZ for the public and emergency workers, and protective actions for the ingestion exposure EPZ. In addition, the staff finds that the guidelines for the choice of protective actions are consistent with Federal guidance and are appropriate to the locale. Section 13.3.2 of this SER discusses the associated description of contacts and arrangements made with offsite agencies with emergency planning responsibility.

13.3.3.11.4 Conclusions

As discussed above, the applicant has described a range of protective actions for the plume exposure pathway EPZ for public and emergency workers, including guidelines for the choice of protective actions that are consistent with Federal guidance, and protective actions for the ingestion exposure pathway EPZ. Based on its review, the staff concludes that the proposed major feature J is consistent with the guidelines in RS-002 and Supplement 2. Therefore, this feature is acceptable and meets the requirements of 10 CFR 52.17(b)(2)(i), 10 CFR 52.18, and Sections III, IV.A, IV.B, IV.D, and IV.E of Appendix E to 10 CFR Part 50, insofar as it describes the essential elements of advanced planning that have been considered for accident assessment, as set forth above.

13.3.3.12 Radiological Exposure Control (Supplement 2, Major Feature K)

13.3.3.12.1 Technical Information in the Application

SSAR Section 13.3.2.2.2.k.1 states that Dominion would maintain doses to emergency response personnel within the limits of 10 CFR Part 20, "Standards for Protection Against Radiation," under normal operating conditions, and that these personnel may, because of necessity, receive a once-in-a-lifetime exposure to contamination and radiation up to the 10 CFR Part 20 annual limits, not including accumulated occupational exposure.

SSAR Section 13.3.2.2.2.k.2 states that the existing NAPS radiological protection and onsite contamination control procedures would apply to the ESP site, or future radiological protection procedures would address these functions. SSAR Section 13.3.2.2.2.k.3 states that emergency workers at the ESP site would receive direct reading and permanent record dosimeters, and Dominion would maintain dose records in accordance with the existing NAPS radiological protection procedures or future radiological protection procedures.

The guidelines for emergency exposure limits are consistent with EPA 400-R-92-001. SSAR Section 13.3.2.2.2.k.4 states that approval from the emergency coordinator is necessary for planned exposures greater than the 10 CFR Part 20 annual limits. Under limited circumstances, exposure limits greater than 5 times the 10 CFR Part 20 annual limits may be allowed, but only to certain volunteers.

NAEP Section 5.2.1.1, "Station Emergency Manager," states that the station emergency manager, who ultimately reports to the recovery manager, has the responsibility for managing and directing emergency operations during the course of the emergency, including the authorization of emergency exposure limits. NAEP Section 6.4.1, "Emergency Exposure Limits," states that station emergency manager approval is necessary for planned exposures greater than the 10 CFR Part 20 annual limits. The guidelines for emergency exposure limits, which are specified in the NAPS EIPs, are consistent with EPA dose limits for workers performing emergency services.

In RAI 13.3-10, the staff asked the applicant to clarify who authorizes exposures greater than the 10 CFR Part 20 annual limits. In its response, the applicant stated that the NAPS station emergency manager functions as the emergency coordinator for the NAPS and can authorize emergency workers to receive doses in excess of the 10 CFR Part 20 limits. In addition, the applicant stated that a COL or CP application would provide a description of the onsite emergency organization. While the applicant has made no decisions regarding organizational details for the prospective new reactors, it stated that it intends no substantial differences between the NAEP and SSAR Section 13.3.

NAEP Section 6.4.2, "Decontamination and First Aid," states that the NAPS health physics procedures and EIPs specify levels of permissible radioactive contamination for workers and equipment. Personnel must take actions when levels for equipment or areas exceed the limits established in the health physics procedures. Any detected personnel contamination would initiate appropriate evaluation and decontamination, in accordance with these procedures. An EIP also provides for the monitoring of vehicles and personnel at the RAAs.

SSAR Section 13.3.2.2.2.k.5 states that Dominion would provide adequate supplies for personnel decontamination and make provisions for decontamination, as specified in the existing units' radiological protection procedures or as addressed in future procedures. Health physics personnel can perform decontamination at the existing units or the ESP site, RAA, or Patrick Henry High School. SSAR Section 13.3.2.2.2.j.1 states that decontamination agents and supplies are available at the NAPS site and can be transported to the RAAs to provide decontamination capabilities. Injured and contaminated persons would be decontaminated to the extent achievable or transported to the hospital, as described in SSAR Section 13.3.2.2.2.l.

SSAR Section 13.3.2.2 states that the ESP site is adjacent to a preexisting nuclear facility with existing State and local emergency plans. The SSAR, therefore, relies on and refers to information contained in these existing plans. No significant differences exist between major features proposed in the application and the major features discussed in existing plans and relied on in the application.

Appendix 6, "Radiological Exposure Control," to the COVERERP states that BRH would issue self-reading pocket dosimeters and TLDs to emergency workers who enter the affected area. In addition, pocket dosimeters, chargers, and TLDs are prepositioned in each risk and host jurisdiction. Local government has the primary responsibility for radiation exposure control, with State agencies providing technical advice and guidance. The State has accepted the EPA PAGs, and the COVERERP provides a variety of protective actions that are consistent with the PAG limits.

Radiation exposure control for emergency workers is accomplished by several means, including continuous monitoring and limiting radiation exposures. In the initial stages of an incident, BRH would use a default exposure control ratio (or dose conversion multiplier) to factor in internal exposure that is not measurable with a pocket dosimeter. BRH would adjust an initial exposure control ratio, which is based on a default accident source term, if accident assessment indicates that a change is necessary to reflect actual conditions. The emergency workers would divide the pocket dosimeter readings by the exposure control ratio to determine their reporting, turn back, and lifesaving levels. The county RERPs give specific instructions regarding the issuance of personal dosimetry.

Appendix 6 to the COVERP provides exposure limits for emergency workers and specifies reporting, turn back, and lifesaving levels. The emergency worker exposure limits and exposure control ratio in the county RERPs are consistent with those in the COVERP. The EOC radiological officer must authorize an emergency worker to exceed the established limits. If the assignment is critical and a replacement is unavailable, the EOC radiological officer may authorize a higher dose, up to the lifesaving level.

The State performs radiological decontamination at the EACs. Appendix 6 to the COVERP provides general instructions relating to monitoring and decontamination of evacuees and emergency workers. In addition, Appendix 10, "Decontamination, Re-Entry, and Return," to the COVERP specifies action levels for determining the need for decontamination and describes the means for decontamination of people, vehicles, livestock, structures, crops, soil, and any other surfaces that are contaminated with radioactive material. The county RERPs include procedures for monitoring and decontamination that are consistent with the COVERP. The State would transport individuals who cannot be decontaminated below prescribed action levels to a medical facility that can handle radiologically contaminated patients.

In RAI 13.3-14(i), the staff asked the applicant for additional information regarding the decisionmaking guidance and authority in the State and local plans for authorizing emergency workers to exceed EPA exposure limits. In RAI 13.3-14(j), the staff also asked the applicant for additional information regarding measures to ensure that the use of the exposure control ratio does not result in emergency workers exceeding EPA exposure limits. In its response to these RAIs dated October 20, 2004, the applicant stated that VDH/BRH would provide authorization, when needed, for any state emergency worker to exceed the 0.15 Sv (15 rem) TEDE turnback level during an emergency. In addition, the applicant addressed the exposure control ratio, consistent with that described above.

13.3.3.12.2 Regulatory Evaluation

SSAR Section 13.3.2.2 presents the major features of the applicant's emergency plan. The applicant stated that it prepared the information presented in SSAR Section 13.3.2.2 in accordance with 10 CFR 52.17(b)(2)(i) and Appendix E to 10 CFR Part 50, and considered the guidance in Supplement 2. SSAR Section 13.3.2.2.2 states that Supplement 2 presents planning standards and evaluation criteria applicable to a major features emergency plan.

In its review of the application, the staff considered the regulatory requirements in 10 CFR 52.17(b)(2)(i), 10 CFR 52.18, and Sections III, IV.A, IV.B, and IV.E of Appendix E to 10 CFR Part 50. Under 10 CFR 52.17(b)(2)(i), an applicant for an ESP may propose major features of the emergency plans for NRC review and approval, in consultation with FEMA, in the absence

of complete and integrated emergency plans. Under 10 CFR 52.18, after consultation with FEMA, the NRC will determine whether the major features of emergency plans submitted under 10 CFR 52.17(b)(2)(i) are acceptable. RS-002 and Supplement 2 provide guidance concerning the review and evaluation of emergency planning information given in an ESP application. Supplement 2 also provides specific evaluation criteria for major features of emergency plans, including those which apply to major feature K, "Radiological Exposure Control."

Major feature K calls for the applicant to describe an onsite radiation protection program and the means for determining and controlling radiological exposures to emergency workers and volunteers (onsite and offsite), including a decision chain for authorizing exposures in excess of EPA dose limits. The application should also describe specific action levels and the means for radiological decontamination of personnel (including personnel wounds), vehicles, equipment, supplies, and possessions.

13.3.3.12.3 Technical Evaluation

In SSAR Section 13.3.2.2.2.k.1, the applicant stated that it would maintain the emergency worker dose limits within the limits of 10 CFR Part 20 and that these limits are consistent with EPA 400-R-92-001. In addition, the existing (or future) NAPS radiological protection and onsite contamination control procedures would apply to the ESP site. The staff finds that the use of the existing NAPS radiological protection and onsite contamination procedures for the ESP site is acceptable, to the extent that they would be expanded to incorporate relevant aspects of a proposed new reactor design in a COL or OL application. The staff will determine the adequacy of such incorporation during a COL or OL review. The staff did not consider the applicability or adequacy of future radiological protection and onsite contamination procedures to be required for a major features review and, as such, did not review it. A COL or OL applicant will address any such future procedures, and the staff will determine compliance with the requirements in this area during a COL or OL review. The staff further finds that the application adequately describes the guidelines for dose limits and the onsite radiation protection program for the ESP site.

The applicant stated that emergency workers at the ESP site would receive direct reading and permanent record dosimeters, and it would maintain dose records in accordance with the existing NAPS radiological protection procedures. State and local emergency workers would also receive self-reading pocket dosimeters and TLDs, in accordance with the COVERP and county RERPs. The State and counties would determine State and local emergency worker doses through the use of radiation exposure record forms. While the local governments have the primary responsibility for radiation exposure control, BRH would provide technical oversight and authority to permit exposures in excess of the EPA dose limits. The staff finds that this is acceptable because it adequately describes how each organization would determine the doses received by emergency personnel, including how they would acquire and distribute dosimeters.

With regard to authorizing emergency workers to incur exposures in excess of the EPA dose limits, the applicant stated in SSAR Section 13.3.2.2.2.k.4 that approval from the emergency coordinator is necessary for planned exposures greater than the 10 CFR Part 20 annual limits. NAEP Section 6.4.1 states that such approval would come from the NAPS station emergency manager, who would function as the emergency coordinator.

Both the COVERP and county RERPs address the authority for State and local emergency workers to incur exposures in excess of the EPA dose limits. The EOC radiological officer should provide authorization to exceed the turnback level, which is determined through the use of pocket dosimeter readings and an exposure control ratio. BRH may adjust the exposure control ratio to reflect actual conditions.

For radiological monitoring and decontamination, the staff finds that the existing units' radiological protection procedures adequately address the action levels and means for the decontamination of ESP site personnel and equipment. The COVERP and county RERPs, together, also adequately describe action levels and the specific means for decontamination. The staff did not consider the extent to which future radiological protection procedures would address radiological protection and onsite contamination control functions, as stated in SSAR Section 13.3.2.2.k.2, to be essential to its review and, therefore, did not evaluate this possibility.

In RAs 13.3-14(i) and 13.3-14(j), the staff asked for information concerning guidance and authority on decisions to authorize emergency worker exposure exceeding EPA limits and measures to ensure that the use of the exposure control ratio does not cause exposures to exceed EPA limits, respectively. The staff identified the consideration of this information as Open Item 13.3-7. The staff reviewed the applicant's responses in their submittal dated October 20, 2004, and finds them acceptable. Therefore, Open Item 13.3-7 is resolved.

The staff finds that the applicant has adequately described guidelines on dose limits and an onsite radiation protection program. In addition, the staff finds that the applicant has adequately described how the EROs would acquire and distribute dosimeters, determine emergency personnel doses, authorize exposures in excess of the EPA dose limits, and conduct radiological decontamination.

13.3.3.12.4 Conclusions

As discussed above, the applicant has described the means for controlling radiological exposures to emergency workers in an emergency. Based on its review, the staff concludes that the proposed major feature K is consistent with the guidelines in RS-002 and Supplement 2. Therefore, this feature is acceptable and meets the requirements of 10 CFR 52.17(b)(2)(i), 10 CFR 52.18, and Sections III, IV.A, IV.B, and IV.E of Appendix E to 10 CFR Part 50, insofar as it describes the essential elements of advanced planning that have been considered for radiological exposure control, as set forth above.

13.3.3.13 Medical and Public Health Support (Supplement 2, Major Feature L)

13.3.3.13.1 Technical Information in the Application

SSAR Section 13.3.2.2.l states that the applicant would make contacts and arrangements for medical services for contaminated injured individuals and that the existing arrangements for the use of the MCVH facilities in Richmond, Virginia, would apply to the ESP site. In the event of a

need for its support, Dominion would call ahead to MCVH to alert it to activate its radiation emergency plan.⁴

SSAR Section 13.3.2.2.1.1 further states that MCVH has developed its own radiation emergency plan, which is designed to provide medical care in the case of a radiation emergency. MCVH also supports the NAPS site in the event of occupational or major accidents, including contaminated personnel. In addition, the plan establishes a specialized area of the hospital for treatment with appropriate health physics functions and implements a coded system to alert hospital team members. The MCVH has radiation monitoring equipment, dosimetry, and protective clothing available, and, based on the quality of the facilities at MCVH, the NRC has accepted the absence of arrangements for a backup hospital. The NAEP includes the MCVH radiation emergency plan as Appendix 10.9.

SSAR Section 13.3.2 states that the emergency plan takes advantage of the emergency planning resources, capabilities, and organization that Virginia Power has already established and currently maintains at the NAPS site. The applicant would extend the existing emergency planning and preparedness activities to include the proposed new unit(s). SSAR Section 13.3.2.2 states that the ESP site is adjacent to a preexisting nuclear facility with existing State and local emergency plans. The SSAR, therefore, relies on and refers to information contained in these existing plans. No significant differences exist between major features proposed in the application and the major features discussed in existing plans and relied on in the application.

Attachment 1 to Tab D of COVERP Appendix 4 states that Mary Washington Hospital and Riverside Hospital serve as backup hospitals for MCVH and would accept radiation exposure patients. Tab D also lists additional hospitals that have radiological response capabilities and would accept radiation exposure patients. The county RERPs also list several hospitals.

SSAR Section 13.3.2.2.1.2 further states that the COVERP contains a list of public, private, and military hospitals and other medical service facilities within the Commonwealth of Virginia that can provide medical support for any contaminated or injured individual. Attachments 1 and 2 to Tab D of COVERP Appendix 4 contain this information and include the name, location, type of facility, capacity, and radiological capabilities. The COVERP and Sections 13.3.2, 13.3.3.4, and 13.3.3.10 of this SER address the contacts and arrangements pertaining to hospital and medical services. As discussed in Section 13.3.2 of this SER, Dominion updated the letters of agreement to reflect that the existing arrangements would apply to a prospective additional reactor(s) at the NAPS site, consistent with the application.

In RAI 13.3-14(k), the staff asked the applicant for additional information regarding a description in the COVERP of the capabilities of local and backup hospital and medical services. In its response to this RAI dated October 20, 2004, the applicant stated that the primary hospital, MCVH, provides 24-hour emergency department coverage and that the maximum number of patients would depend on the availability of hospital facilities and beds. In addition, the backup hospital, Mary Washington Hospital, also provides 24-hour emergency department coverage.

⁴Medical College of Virginia Hospitals/Virginia Commonwealth University (MCVH/VCU), "Radiation Emergency Plan—Virginia Power," January 14, 2003

13.3.3.13.2 Regulatory Evaluation

SSAR Section 13.3.2.2 presents the major features of the applicant's emergency plan. The applicant stated that it prepared the information presented in SSAR Section 13.3.2.2 in accordance with 10 CFR 52.17(b)(2)(i) and Appendix E to 10 CFR Part 50, and considered the guidance in Supplement 2. SSAR Section 13.3.2.2.2 states that Supplement 2 presents planning standards and evaluation criteria applicable to a major features emergency plan.

In its review of the application, the staff considered the regulatory requirements in 10 CFR 52.17(b)(2)(i), 10 CFR 52.18, and Sections III, IV.A, IV.B, and IV.E of Appendix E to 10 CFR Part 50. Under 10 CFR 52.17(b)(2)(i), an applicant for an ESP may propose major features of the emergency plans for NRC review and approval, in consultation with FEMA, in the absence of complete and integrated emergency plans. Under 10 CFR 52.18, after consultation with FEMA, the NRC will determine whether the major features of emergency plans submitted under 10 CFR 52.17(b)(2)(i) are acceptable. RS-002 and Supplement 2 provide guidance concerning the review and evaluation of the emergency planning information given in an ESP application. Supplement 2 also provides specific evaluation criteria for major features of emergency plans, including those which apply to major feature L, "Medical and Public Health Support."

Major feature L calls for the applicant to describe contacts and arrangements made for medical services for contaminated injured individuals, as well as to develop lists indicating the locations and capabilities of emergency medical services facilities.

13.3.3.13.3 Technical Evaluation

As stated in SSAR Section 13.3.2.2.2.1.1, arrangements currently exist with MCVH in Richmond, Virginia, in support of the NAPS site and include application of the MCVH plan. Section I, "Introduction," of the MCVH plan states that it is designed to provide medical care for either a major or minor radiation emergency in the central Virginia region. In addition, the MCVH plan supports Virginia Power's nuclear reactor stations in the event of occupational and/or major accidents. Section VII, "Radiation Emergency Response," of the MCVH states that the MCVH/VCU Department of Emergency Medicine area is equipped to treat as many as four contaminated patients at one time, depending upon the degree of emergency medical care needed.

Tab D to COVRERP Appendix 4 states that MCVH would act as the primary hospital for an individual who is both contaminated and injured. In addition, it provides a detailed list of backup hospitals. The county RERPs also list several hospitals. In RAI 13.3-14(k), the staff asked for information concerning the COVRERP description of local and backup hospital and medical services capabilities. The staff identified the consideration of this information as Open Item 13.3-8. The staff reviewed the applicant's response in their submittal dated October 20, 2004, and finds it acceptable. Therefore, Open Item 13.3-8 is resolved.

The staff concurs with the applicant's statement in SSAR Section 13.3.2.2.2.1.1 that the NRC has accepted the absence of arrangements for a backup hospital, based on the quality of the facilities at MCVH. For the NAPS site, the NRC concluded in Section L of Appendix B to Supplement 11 to NUREG-0053, "Safety Evaluation Report Related to the Operation of North Anna Power Station, Unit 2," issued August 1980, that VEPCO did not have arrangements for a backup hospital in the local area. However, based on the quality of the facilities at the MCVH,

the staff found that this arrangement was acceptable. The staff reviewed the current MCVH plan and finds that it includes a listing in Appendix IX of hospitals that have indicated that they have a radiological emergency response capability and would accept radiation accident victims. This list includes the name, location, type of facility, capacity, and special radiological capabilities. The MCVH plan also describes the contacts and arrangements.

The staff reviewed the existing letters of agreement in Appendix 10.1 to the NAEP and finds that the letter of agreement with MCVH provides a detailed description of contacts and arrangements between the applicant and MCVH relating to medical services in support of the NAPS site. As discussed in Section 13.3.2 of this SER, Dominion updated the letters of agreement to reflect that the existing arrangements would apply to a prospective additional reactor(s) at the NAPS site, consistent with the application.

The staff finds that the applicant has adequately described the contacts and arrangements made for local and backup hospitals, including the capability for the evaluation of radiation exposure and uptake, as well as provided lists of locations and capabilities.

13.3.3.13.4 Conclusions

As discussed above, the applicant has described the contacts and arrangements for medical services for contaminated injured individuals, including local and backup hospital and medical services having the capability for evaluation of radiation exposure and uptake. Based on its review, the staff concludes that the proposed major feature L is consistent with the guidelines in RS-002 and Supplement 2. Therefore, this feature is acceptable and meets the requirements of 10 CFR 52.17(b)(2)(i), 10 CFR 52.18, and Sections III, IV.A, IV.C, and IV.E of Appendix E to 10 CFR Part 50, insofar as it describes the essential elements of advanced planning that have been considered for medical and public health support, as set forth above.

13.3.3.14 Radiological Emergency Response Training (Supplement 2, Major Feature O)

13.3.3.14.1 Technical Information in the Application

In SSAR Section 13.3.2.2.2.o the applicant stated that it intends to rely on the existing Nuclear Power Station Emergency Preparedness Training (NPSEPT) Program Guide to provide the framework for conducting specialized initial training and periodic retraining for Dominion personnel at any new unit(s) that might be constructed on the ESP site.

The NPSEPT Program Guide contains the curriculum design and describes program management, implementation, evaluation, documentation, and training for personnel designated to fill ERO positions. Emergency preparedness training that is not given by the nuclear emergency preparedness (NEP) staff is conducted pursuant to supporting department training program guidance. Procedures provide that the NEP staff verify that this departmental training is consistent with the provisions of the NPSEPT Program Guide. These training programs, taken collectively, establish the initial training and retraining provisions for the existing units' ERO positions. NEP personnel, other than those designated to develop training programs, independently verify that the training specified by the NPSEPT Program Guide is accomplished.

SSAR Section 13.3.2.2.2.o states that Dominion would incorporate specific training requirements for ERO personnel supporting a new reactor(s) into the NPSEPT Program Guide and would include specialized initial training and periodic retraining. Dominion would provide specific training for the following emergency response categories:

- response organization coordinators
- accident assessment personnel
- personnel performing radiological monitoring and analysis
- police, security, and firefighting personnel
- first aid and rescue personnel
- local support services personnel
- medical support personnel
- communicators

In addition, NAEP Section 8.3.3, "Emergency Response Personnel Training," states that personnel designated to fill interim, primary, or alternate emergency response positions would receive training in accordance with the NPSEPT Program Guide. NAEP Table 8.1, "Emergency Preparedness Training," lists select emergency response positions, along with an overview of the training provided. Dominion may award equivalency credit for training sessions based on an individual's knowledge of the subject matter.

SSAR Section 13.3.2.2 states that the ESP site is adjacent to a preexisting nuclear facility with existing State and local emergency plans. The SSAR, therefore, relies on and refers to the information contained in these existing plans. No significant differences exist between major features proposed in the application and the major features discussed in existing plans and relied on in the application.

Appendix 12, "Training and Exercises," to the COVERERP states that the licensee will provide site-specific emergency response training to State and local officials and to local emergency units that may be called upon to provide assistance in the event of an emergency. The licensee will invite offsite agencies to participate in annual drills held at the nuclear facility. VDEM will coordinate and provide an ongoing training program for instructing State and local personnel to perform necessary emergency functions. VDEM will offer all State and local emergency response personnel comprehensive training through the Radiological Emergency Response Preparedness Program on an annual basis. Federal agencies with radiological emergency responsibilities will provide training to State and local officials within their areas of responsibilities. The county RERPs note that the counties, in conjunction with the State, will participate in and provide training to involved organizations and individuals.

Appendix 12 to the COVERERP further states that various personnel (e.g., police, firefighters, first aid, and rescue personnel) will achieve proficiency in their primary skills through recognized ongoing training programs during their professional development. They will acquire unique radiological emergency response skills through in-house training programs and programs presented by the licensee and State agencies. State agency and local department heads will train State and county personnel responsible for the transmission of emergency information and instructions. Training will consist of notification form use, verification procedures, recordkeeping, and filing of messages. Training programs will be continuous.

In RAI 13.3-14(l), the staff asked the applicant for additional information regarding a description in the COVERP of the program for qualifying State and local directors/coordinators of emergency response. In its response to this RAI dated October 20, 2004, the applicant stated that, as reflected in Appendix 12 to the COVERP, VDEM provides an ongoing training program for instructing State and local personnel to perform emergency response functions. The RERP annually offers training to all State and local emergency response personnel. This program includes basic response information, as well as job-specific training. The RERP maintains a detailed database, which consists of courses completed by individuals within the last 5 years.

13.3.3.14.2 Regulatory Evaluation

SSAR Section 13.3.2.2 presents the major features of the applicant's emergency plan. The applicant stated that it prepared the information presented in SSAR Section 13.3.2.2 in accordance with 10 CFR 52.17(b)(2)(i) and Appendix E to 10 CFR Part 50, and considered the guidance in Supplement 2. SSAR Section 13.3.2.2.2 states that Supplement 2 presents planning standards and evaluation criteria applicable to a major features emergency plan.

In its review of the application, the staff considered the regulatory requirements in 10 CFR 52.17(b)(2)(i), 10 CFR 52.18, and Sections III and IV.F of Appendix E to 10 CFR Part 50. Under 10 CFR 52.17(b)(2)(i), an applicant for an ESP may propose major features of the emergency plans for NRC review and approval, in consultation with FEMA, in the absence of complete and integrated emergency plans. Under 10 CFR 52.18, after consultation with FEMA, the NRC will determine whether the major features of emergency plans submitted under 10 CFR 52.17(b)(2)(i) are acceptable. RS-002 and Supplement 2 provide guidance concerning the review and evaluation of emergency planning information given in an ESP application. Supplement 2 also provides specific evaluation criteria for major features of emergency plans, including those which apply to major feature O, "Radiological Emergency Response Training." Major feature O calls for the applicant to describe a radiological emergency response training program for personnel who would implement the RERPs.

13.3.3.14.3 Technical Evaluation

In SSAR Section 13.3.2.2.2.o, the applicant stated that the NPSEPT Program Guide would provide the framework for conducting specialized initial and periodic retraining for Dominion personnel at the new units. The staff reviewed NAEP Section 8.3, "Training of Station Personnel," and Section 8.4, "Training of Offsite Support Personnel," and they are consistent with the information provided by the applicant in SSAR Section 13.3.2.2.2.o. In addition, the COVERP and the county RERPs are also consistent with SSAR Section 13.3.2.2.2.o, as well as with the NAEP.

In RAI 13.3-14(l), the staff asked the applicant for information concerning the COVERP description of the program for qualifying State and local directors/coordinators of emergency response. The staff identified the consideration of this information as Open Item 13.3-9. The staff reviewed the applicant's response in their submittal dated October 20, 2004, and finds it acceptable. Therefore, Open Item 13.3-9 is resolved. The staff finds that the applicant has adequately described a training program for instructing and qualifying personnel who will implement radiological emergency response plans and that the description also addresses providing for specialized initial training and periodic retraining.

13.3.3.14.4 Conclusions

As discussed above, the applicant has described a radiological emergency response training program for those who may be called on to assist in an emergency, including a training program for instructing and qualifying personnel who would implement the radiological emergency response plans. In addition, the applicant has described specialized initial training and periodic retraining. Based on its review, the staff concludes that the proposed major feature O is consistent with the guidelines in RS-002 and Supplement 2. Therefore, this feature is acceptable and meets the requirements of 10 CFR 52.17(b)(2)(i), 10 CFR 52.18, and Sections III, IV.A, and IV.F of Appendix E to 10 CFR Part 50, insofar as it describes the essential elements of advanced planning that have been considered for radiological emergency response training, as set forth above.

13.3.3.15 *Responsibility for the Planning Effort—Development, Periodic Review, and Distribution of Emergency Plans (Supplement 2, Major Feature P)*

13.3.3.15.1 Technical Information in the Application

SSAR Section 13.3.2.2.2.p states that the responsibility for the planning effort resides with the Virginia Power NEP department. The overall authority and responsibility for maintaining emergency preparedness, as well as program implementation associated with the existing NAPS site, would be extended to include the ESP site. Individuals responsible for the planning effort would be afforded training commensurate with their duties and existing knowledge, skills, and abilities. This may include site-specific training and external training from the Emergency Management Institute (EMI), National Emergency Training Center, Harvard School of Public Health, and Nuclear Energy Institute (NEI).

The Virginia Power senior vice president for nuclear operations and chief nuclear officer have the overall authority for maintaining emergency preparedness. The senior vice president for nuclear operations is responsible for program implementation, and the vice president for nuclear support services is responsible for program maintenance. The NAPS site vice president is responsible for NAPS site emergency preparedness. The director of nuclear protection services and emergency preparedness is responsible for maintaining emergency preparedness at the NAPS, developing the ESP site major features emergency plan, and coordinating the plan with other response organizations. The SSAR states that the applicant would extend responsibility for NAPS emergency preparedness to include the ESP site.

With regard to updating emergency plans and agreements, SSAR Section 13.3.2.2.2.p.4 states the following:

Following approval of the emergency planning information in the Dominion ESP site Major Features Emergency Plan, there is no requirement to update the plan or its supporting-organization agreements until after an operating license is issued. Dominion would update the emergency planning information as necessary in a COL application. Any changes that represent a decrease in the effectiveness of the previously approved information with respect to the standards of 10 CFR 50.47(b) or requirements of 10 CFR 50, Appendix E, would be specifically identified and addressed.

SSAR Section 13.3.2.2.p.5 states that the COL applicant would prepare the ESP site emergency plan as part of its application. Upon issuance, the COL applicant would forward the emergency plan and approved changes to organizations and appropriate individuals with responsibility for its implementation. The COL applicant would mark revised pages to show where changes have been made, and it would date or mark the pages with a revision number associated with an effective date.

The SSAR provides a table of contents, which includes emergency planning information contained in Part 2 of the application. SSAR Table 13.3-2 provides the appropriate cross-reference to the Supplement 2 criteria.

SSAR Section 13.3.2.2 states that the ESP site is adjacent to a preexisting nuclear facility with existing State and local emergency plans. The SSAR, therefore, relies on and refers to the information contained in these existing plans. No significant differences exist between major features proposed in the application and the major features discussed in existing plans and relied on in the application.

Appendix 12, "Training and Exercises," to the COVERERP states that individuals within State agencies charged with radiological emergency response planning will undergo training to qualify them in the essential elements of radiological response planning necessary to deal with the offsite effects of an accident at a nuclear facility. Training will emphasize the development of State and local plans that meet current Federal guidelines. VDEM will supervise continuous training and will send key planners to the radiological emergency planning course at EMI.

COVERERP Section XI, "Execution," states that the State coordinator of emergency management has overall authority and responsibility for radiological emergency response planning. This includes developing and updating the plans and coordinating them with other response organizations. The county RERPs state that the county director or emergency services coordinator has overall authority and responsibility for radiological emergency response planning in the county. The counties, in conjunction with the State, will participate in, and provide training to, the county director or emergency services coordinator.

COVERERP Section XI also notes that the State coordinator of emergency management will maintain, review, update, and certify the COVERERP annually. The State will periodically review letters of agreement, at a minimum of every 2 years. Responsible officials from State agencies and local governments will recommend appropriate improvements or changes at any time to the State coordinator of emergency management. The State will forward the COVERERP, along with approved amendments, to all organizations and individuals responsible for implementation. Revised pages will be dated and marked to show where changes have been made. The COVERERP has a specific table of contents and is cross-referenced to the NUREG-0654/FEMA-REP-1 criteria. Each county will review its plan and procedures annually and will distribute them to individuals and organizations responsible for their implementation. The county RERPs have a record of changes at the beginning of the plans, with revision dates on each page. In addition, they include a specific table of contents and cross-reference to the NUREG-0654/FEMA-REP-1 criteria.

In RAI 13.3-13 and RAIs 13.3-14(m), (n), and (o), the staff asked the applicant for additional information regarding cross-references to Supplement 2, as well as a description of the training program and review/update of the RERP and agreements for Orange County. In its response

to these RAIs dated October 20, 2004; the applicant stated that VDEM provides initial training and retraining for the emergency services coordinator and other emergency services related personnel (i.e., EOC support staff). The Orange County RERP maintains a record of change, and training and exercises are conducted to assure the adequacy and update of the plan on a biennial basis. The applicant also provided a cross-reference to Supplement 2.

13.3.3.15.2 Regulatory Evaluation

SSAR Section 13.3.2.2 presents the major features of the applicant's emergency plan. The applicant stated that it prepared the information presented in SSAR Section 13.3.2.2 in accordance with 10 CFR 52.17(b)(2)(i) and Appendix E to 10 CFR Part 50, and considered the guidance in Supplement 2. SSAR Section 13.3.2.2.2 states that Supplement 2 presents planning standards and evaluation criteria applicable to a major features emergency plan.

In its review of the application, the staff considered the regulatory requirements in 10 CFR 52.17(b)(2)(i), 10 CFR 52.18, and Sections III, IV.A, IV.F, and IV.G of Appendix E of 10 CFR Part 50. Under 10 CFR 52.17(b)(2)(i), an applicant for an ESP may propose major features of the emergency plans for NRC review and approval, in consultation with FEMA, in the absence of complete and integrated emergency plans. Under 10 CFR 52.18, after consultation with FEMA, the NRC will determine whether the major features of emergency plans submitted under 10 CFR 52.17(b)(2)(i) are acceptable. RS-002 and Supplement 2 provide guidance concerning the review and evaluation of emergency planning information given in an ESP application. Supplement 2 also provides specific evaluation criteria for major features of emergency plans, including those which apply to major feature P, "Responsibility for the Planning Effort: Development, Periodic Review, and Distribution of Emergency Plans."

Major feature P calls for the applicant to describe the development, review, distribution, and update of emergency plans. The application should also designate an emergency planning coordinator for each organization and identify (by title) individuals with emergency planning responsibility. In addition, the application should describe training for those responsible for the planning effort.

13.3.3.15.3 Technical Evaluation

The application describes, by title, the individuals with overall authority and responsibility for radiological emergency response planning. This description includes the development and update of plans and coordination with other response organizations. SSAR Section 13.3.2.2.2.p identifies the director of nuclear protection services and emergency preparedness as the person responsible for emergency planning for the ESP site. The COVRRERP identifies the State coordinator of emergency management, and the county RERPs identify either the county director or emergency services coordinator.

For the applicant, training includes site-specific training and external training from organizations such as EMI, the National Emergency Training Center, the Harvard School of Public Health, and NEI. State emergency planners will receive continuous training on the essential elements of radiological response planning and will be sent to the radiological emergency planning course at EMI. County planners will receive training from the county, in conjunction with the State.

SSAR Section 13.3.2.2.2.p.5 states that the COL applicant will forward approved plan changes to appropriate organizations and individuals and mark and date updates. COVERP Section XI indicates that the State updates its plan annually and periodically reviews the letters of agreement (at least every 2 years). The State and local governments can make recommended updates at any time and will forward them to all organizations and individuals responsible for implementation. Local governments will review the county RERPs annually and distribute the updated plans and procedures. The COVERP and county RERPs, which contain a table of contents, will be dated and marked to show where changes have been made.

In Section 13.3.2.2.2.p.4 of the SSAR, the applicant stated that no requirement exists to update the emergency plan or its supporting organization agreements until after an operating license is issued. The regulations in 10 CFR 52.79(d) currently do not require such updating in a COL application. Therefore, a COL application could propose an emergency plan incorporating emergency preparedness information approved in an ESP without updating. Nonetheless, to the extent that emergency preparedness information approved in an ESP is no longer current when a COL application incorporating that information by reference is submitted pursuant to 10 CFR 52.79, "Contents of Applications; Technical Information," that information will need to be updated. The staff will not approve emergency plans proposed in a COL application under 10 CFR 52.79(d) if such plans are based upon obsolete or superceded information. The nature and depth of the staff review of the updated information may vary depending on the nature of the update. In all cases, any changed information would be subject to challenge in the COL proceeding. While updating of previously approved emergency preparedness information is not currently required, the Commission has proposed to add a provision in 10 CFR Part 52, "Early Site Permits; Standard Design Certifications; and Combined Licenses for Nuclear Power Plants," to require such updating, as discussed in the Notice of Proposed Rulemaking for 10 CFR Part 52 (*Federal Register*, Vol. 68, p. 40026). The staff will determine compliance with the requirements in this area during a COL application review based on the regulations in effect at that time. In addition, the applicant stated in SSAR Section 13.3.2.2.2.p.4 that "[a]ny changes that represent a decrease in effectiveness of the previously approved information with respect to the standards of 10 CFR 50.47(b) or requirements of 10 CFR 50, Appendix E, would be specifically identified and addressed." The staff did not consider this information essential to its review and, therefore, did not evaluate it.

In RAI 13.3-13 and RAIs 13.3-14(m)-(o), the staff asked for information concerning cross-references to Supplement 2, as well as a description of the training program and review/update of the RERP and agreements for Orange County. The staff identified the consideration of this information as Open Item 13.3-10. The staff reviewed the applicant's responses in their submittal dated October 20, 2004, and finds them acceptable. Therefore, Open Item 13.3-10 is resolved. The staff finds that the applicant has adequately described the responsibilities for emergency plan development, review and distribution, and for the training of emergency planners.

13.3.3.15.4 Conclusions

As discussed above, the applicant has described the responsibilities for plan development and review and for distributing and updating emergency plans. In addition, the applicant has identified those responsible for the planning effort and has described the training that they receive. Based on its review, the staff concludes that the proposed major feature P is consistent with the guidelines in RS-002 and Supplement 2. Therefore, this feature is

acceptable and meets the requirements of 10 CFR 52.17(b)(2)(i), 10 CFR 52.18, and Sections III, and IV.A, IV.F, and IV.G of Appendix E to 10 CFR Part 50, insofar as it describes the essential elements of advanced planning that have been considered related to the responsibility for the planning effort, including the development, periodic review, and distribution of emergency plans, as set forth above.

13.6 Industrial Security

The NRC staff reviewed the physical security aspects of the ESP application to determine whether site characteristics are such that adequate security plans and measures can be developed.

13.6.1 Technical Information in the Application

In Section 13.6 of the SSAR, the applicant stated that it would extend the protected area of the existing Units 1 and 2 at NAPS to accommodate any new units constructed on the ESP site. The applicant stated that the site characteristics are such that the applicable NRC regulations, guidance documents, and orders can be met. The applicant based this conclusion on the size of the NAPS site, which is sufficiently large to provide adequate distances between vital areas and the probable location of a security boundary.

In RAI 13.6-1, the staff asked the applicant to describe how the ESP plant parameter envelope (PPE) and surrounding terrain features will provide at least 360 ft of distance (as specified in Regulatory Guide (RG) 4.7, Revision 2, "General Site Suitability Criteria for Nuclear Power Stations," issued April 1998) between vital equipment/structures and physical protection components (e.g., protected area barriers and isolation zones). In its response, the applicant stated that the protected area and related isolation zone would be constructed to comply with the requirements of 10 CFR 73.55(c), and that the protected area barrier would be of sufficient size to support the security response strategy timelines.

Section 13.6 of the SSAR states that Dominion has a security program in place for the existing units and notes that the program complies with the NRC's "Order for Interim Compensatory Measures," dated February 25, 2002, regarding waterborne threats. The SSAR further concludes that Dominion anticipates that it will continue to meet those requirements in the event that it adds new units to the site. Section 13.6 also states that the COL application would address final design features for the new units' power blocks and supporting buildings, as appropriate, to ensure adequate site security. Finally, SSAR Section 13.6 concludes that no security hazards are created from nearby hazardous material facilities.

Section 2.2.2.7 of the SSAR describes pipelines that are of potential concern.

13.6.2 Regulatory Evaluation

In Sections 1.8 and 13.6 of the SSAR, the applicant identified 10 CFR 100.21(f) and 10 CFR 73.55, "Requirements for Physical Protection of Licensed Activities in Nuclear Power Reactors Against Radiological Sabotage," as the applicable regulations and noted that RG 4.7, Revision 2, provides applicable guidance. The staff reviewed this portion of the application for

conformance with the applicable regulations, and considered the corresponding regulatory guidance as identified above.

The NRC regulations require that applicants for an ESP address characteristics of the proposed site that could affect security. Specifically, 10 CFR 52.17, "Contents of Applications," requires that site characteristics comply with 10 CFR Part 100, "Reactor Site Criteria"; 10 CFR 100.21(f) states that site characteristics must be such that applicants can develop adequate security plans and measures. In RG 4.7, Revision 2, the NRC provides amplifying guidance and notes that 10 CFR 73.55 describes physical protection requirements for nuclear power plants.

Review Standard (RS)-002, "Processing Applications for Early Site Permits," notes that the NRC staff has provided guidance to the first three prospective ESP applicants in three substantially identical letters (ADAMS Accession No. ML030980003 for the Dominion application). RS-002 adds that these letters should be used for review guidance for the ESP applications to which they apply. Specifically, the Dominion letter requested that the ESP application discuss certain characteristics as they relate to implementing a physical security plan for a postulated facility. In addition, the letter stated that the applicant should consider the interim compensatory measures (ICMs) imposed on power reactors by Order dated February 25, 2002, and the design-basis threat for reactors which was issued by Order dated April 29, 2003. However, RS-002 also notes that the NRC's security orders referenced in the letter are, by their nature, subject to modification depending on changes in the terrorist threat. The security orders do not form part of the licensing basis of the ESP and are not imposed as conditions of prospective permits. The security review of ESP applications is based on the requirements of 10 CFR Part 100 and 10 CFR Part 73, "Physical Protection of Plants and Materials," or other applicable existing regulations.

13.6.3 Technical Evaluation

The staff reviewed the application and responses to its RAIs and examined aspects of the application during an onsite visit. The proposed ESP site is located on the shore of Lake Anna in Louisa County, Virginia, near two licensed nuclear power reactors (North Anna, Units 1 and 2) owned by Virginia Electric and Power Company, an affiliate of the applicant. The NAPS site is defined by a 5000-ft radius circle originating from the center of the partially constructed, but now abandoned, North Anna Unit 3 (see Figure 1.2-4, note 3, in the application). The ESP PPE (site footprint) that bounds the prospective location for any new nuclear power reactors that might be constructed on the proposed ESP site is located directly west of the existing NAPS protected area and no closer than 800 yards to the site boundary.

Using the criteria set forth in 10 CFR 100.21(f), the staff identified and considered various characteristics of the site that could affect the establishment of adequate security plans and measures. The staff considered pedestrian land approaches, vehicular land approaches, railroad approaches, water approaches, potential "high-ground" adversary advantage areas, nearby road transportation routes, nearby hazardous materials facilities, nearby pipelines, and culverts that could provide a pathway into the protected area.

With respect to pedestrian approaches, the staff found that various figures in the application (e.g., Figure 1.0-1) identify the applicant's PPE (within which all safety-related structures would be located if one or more reactors were to be constructed there). In RAI 13.6-1, the staff asked

the applicant to identify its plans to address the guidance in RG 4.7, Revision 2, which specifies that an applicant provide a minimum of 360 ft between protected area barriers and vital areas to allow for appropriate barriers, detection equipment, isolation zones, and vehicle barriers to protect vital equipment. In its response, the applicant stated that protected area barriers would be separated from vital area barriers, and be of sufficient size to support the security response strategy timelines. The staff concluded that the distance from planned locations of vital equipment and structures (which might be located anywhere in the PPE (ESP site footprint) because a design is not specified at the ESP stage) to the planned protected area boundary can be made sufficiently large so that holders of a COL or construction permit (CP) could appropriately locate delay barriers, isolation zones, detection equipment, and vehicle barriers to protect vital equipment and structures.

With respect to water approaches, the staff noted that vital equipment for the existing NAPS units is sufficiently far from Lake Anna that restrictions to lake access are not required. The need for such restrictions for any new units would depend on the design of the units and their location on the ESP footprint (PPE). The site configuration would not present any significant impediments to development of such restrictions.

With respect to vehicular land and railroad approaches, the staff identified existing roads, rail spurs, and site terrain features. The staff concluded that the location of existing roads and site terrain features does not preclude the establishment of adequate vehicle control measures to (1) prevent the use of a land vehicle to gain unauthorized proximity to vital areas and (2) protect against a vehicle bomb. The staff based its conclusion on the fact that the location of the existing vehicle checkpoint, which could be used for vehicular control to the ESP site, has adequate standoff distance from the PPE to mitigate vehicle-bomb overpressure effects. Further, the staff confirmed during a site visit that the terrain features on all borders of the site are amenable to the implementation of a vehicle barrier system.

With respect to threats posed by deliberate vehicle explosions on nearby transportation routes, the staff noted that, in SSAR Section 2.2.3.1.1, the applicant analyzed a gasoline tanker explosion involving 8500 gallons of gasoline detonated on Virginia Highway 652 at a point 1.5 miles from the proposed site. The staff performed an independent calculation for the tanker explosion and found different results than the applicant's because the applicant did not take into account the 240 percent (mass) equivalence for substances subject to vapor-phase explosions (see RG 1.91, Revision 1, "Evaluations of Explosions Postulated to Occur on Transportation Routes Near Nuclear Power Plants," issued February 1978). Nevertheless, the staff's analysis reached the same conclusion as the applicant, that such an event would not result in an overpressure of greater than 1 pound per square inch (psi) at the site boundary. The pressure threshold for human eardrum rupture is 5 psi, which is the first point of human incapacitation (see U.S. Army Technical Manual 5-1300, "Structures to Resist the Effects of Accidental Explosions," issued November 1990). A peak positive overpressure of 1 psi is a conservative threshold below which no significant damage would be expected for systems, structures, and components of concern (RG 1.91, Revision 1). The applicant did not identify any other hazardous materials transported on the nearby roadways.

With respect to nearby hazardous materials facilities and nearby pipelines, the staff found that the distances to those facilities and pipelines and the materials identified associated with them are of such a nature that they do not pose an impediment to the development of adequate security plans or measures.

The staff examined the overall site terrain with respect to features (including existing manmade features, such as culverts, as well as natural features) that potential adversaries could use to their advantage. The features that exist at the ESP site do not preclude the establishment of adequate security plans and measures.

Considering RG 4.7, special measures may be needed to support the security response strategy timelines requirements of 10 CFR 73.55(c). Since the exact locations and design of barriers is not known at the ESP stage, the staff identified a COL action item for the COL or CP applicant to provide specific designs for protected area barriers to support the security response strategy timelines. This is **COL Action Item 13.6-1**.

13.6.4 Conclusions

As set forth above, the staff examined the site characteristics with respect to their potential to affect the establishment of adequate security plans and measures. The staff examined pedestrian, vehicle, and water approaches, including existing culverts, nearby hazardous materials facilities, nearby pipelines, nearby railroad lines, and other transportation routes, as well as terrain features. Based on the above evaluation, the staff concludes that the ESP site characteristics would allow an applicant for a COL or CP to develop adequate security plans and measures for a reactor(s) that it might construct and operate on the ESP site.